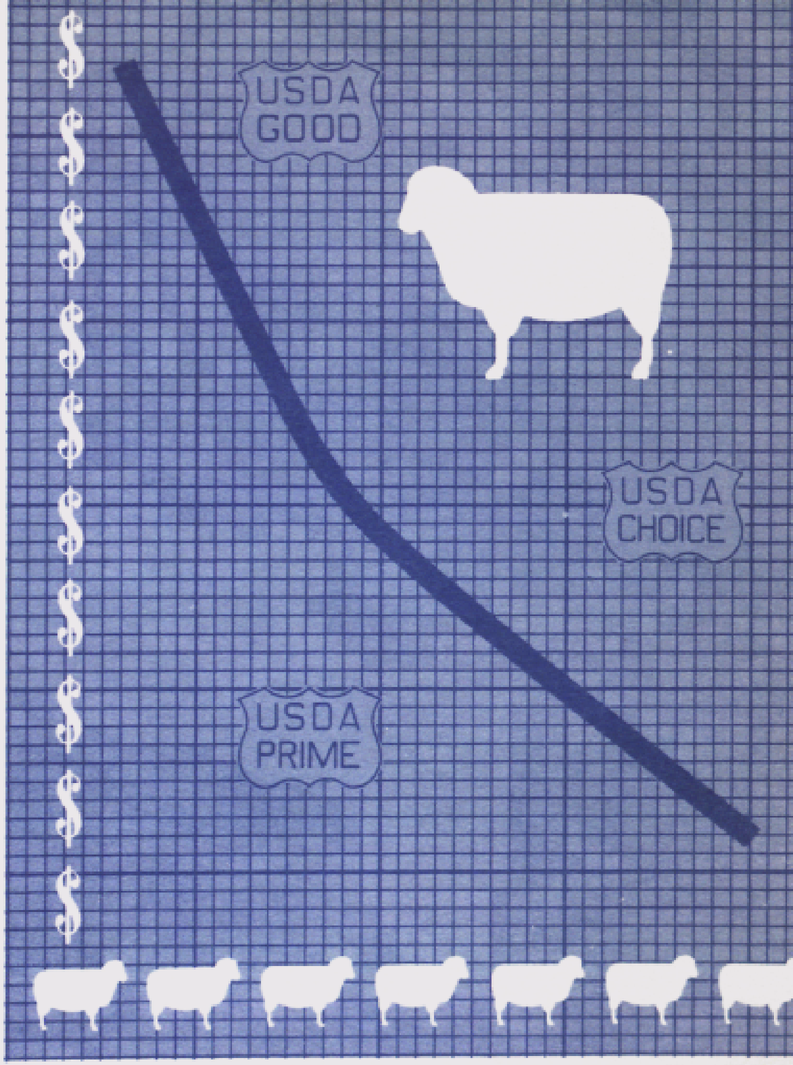

ECONOMIC EFFECTS OF U.S. GRADES FOR LAMB

Agricultural Economic Report No. 25

U.S. DEPARTMENT OF AGRICULTURE • ECONOMIC RESEARCH SERVICE • MARKETING ECONOMICS DIVISION

PREFACE

Early in 1959 several groups in the sheep industry asked the Department of Agriculture to suspend Federal grading of lamb on the grounds that it was hurting rather than helping the marketing of lamb and mutton. Much controversy over discontinuing or revising the Federal grade standards continued through 1959 and culminated in public hearings before the House of Representatives Committee on Agriculture in January 1960.

At the conclusion of the hearings the Committee recommended that Federal grading of lamb and mutton be continued without interruption. It also recommended that the Department and lamb producing, distributing, and consuming interests make a renewed effort to work out satisfactory standards. Grade standards for lamb and mutton were revised, effective March 1, 1960.

The Committee, in transmitting its resolution to the Secretary of Agriculture, requested that the Department of Agriculture make a study of the effect of Federal grading of lamb and mutton on producer and consumer prices.

Professor Darrell F. Fienup, Department of Agricultural Economics, University of Minnesota, was appointed to head a team of research workers which included William C. Motes, Stephen J. Hiemstra, and Robert E. Laubis, all of the Economic Research Service of the Department. This research was carried on under the general leadership of Gerald Engelman, also of the Economic Research Service. At the initiation of the research, and at several times during its course, the Department drew upon a group of consultants from agricultural economics departments of several land-grant universities for advice and counsel on approaches to the study and interpretation of findings. The group included Professors Clive R. Harston, Montana State College, John G. McNeely, Texas A & M College, Willard F. Mueller, University of Wisconsin, and Willard F. Williams, Oklahoma State University.

The Committee asked the U. S. Department of Agriculture to make a study of the "lamb market price structure and pricing practices, particularly as they might be influenced by the use of Federal grades." The initial report of this study, "Effect of Federal Lamb and Mutton Grades on Producer and Consumer Prices," was published by the Congress in March 1962. This is the final report of that study.

Washington, D. C.

February 1963

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SUMMARY

For more than three decades the Department of Agriculture has offered a Federal grading service for lamb and mutton carcasses. During recent years about two-fifths of all the lamb and mutton produced in the United States has been federally graded. This service is provided on request and paid for by those who use it.

The use of Federal grades depends on the type, size, and market position of packers and wholesalers in relation to these same characteristics of their customers. Differences in use of Federal grading are found in different areas of the country. Lamb consumption is highly concentrated in the Northeast and Pacific Coast areas. In the West, where most lamb is sold federally graded, independent packers predominate and leading retailers merchandise Federal grades. In the Northeast, only a quarter of the lamb is sold federally graded, a quarter packer branded, and half ungraded or not rolled with a Federal grade. In this area most of the lamb is sold by national packers to retail chains who do not usually merchandise federally graded products.

Most retailers in the United States find Federal grading for lamb useful in merchandising and as guidelines in purchasing. Lamb is a small volume item for most retailers. Procurement and merchandising policies regarding lamb are greatly influenced by policies used for larger volume meats.

Wholesalers use Federal grading as a quality standard in both buying and selling. Federal grading is especially important in their sales to hotels, restaurants, and institutions.

Packers with national distribution systems slaughter more than three-fifths of all lambs, substantially more on some markets. These packers generally oppose Federal grading. In many areas, especially on the West Coast, independent packers have become increasingly important. Most of these depend heavily on Federal grading and are strong supporters of the service.

Special sales account for much of the lamb sold at retail. Some retailers go into the wholesale market to buy lamb in volume only when buying for a special sale. This flexibility places them in an advantageous bargaining position relative to packers, even though the market is more concentrated at the packer level. This advantage depends both on the timing and volume needed for the sale.

Price analysis suggests that factors other than grading were responsible for the 1958-61 lamb price decline. Lamb prices are affected primarily by changes in the supply of lamb and beef. Prices also have been affected by the increasing production of other substitutes (particularly poultry) and a steadily declining demand for lamb. Rising imports of lamb and mutton in recent years have been primarily boned mutton. Lamb imports in 1961 amounting to 2 percent of domestic production were estimated to have decreased retail lamb prices by less than one-half cent per pound. The long-term decline in demand for lamb shows up most clearly in reduced prices at retail for the forequarter cuts.

The 1960 change in Federal grade standards substantially increased the proportion of graded lamb rolled Prime, and reduced the proportion rolled Good. The proportion graded Choice declined slightly. However, packers estimated that this change increased the proportion of all lamb slaughter qualified for the Choice grade from one-half to two-thirds, increased Prime from one-twentieth to one-tenth, and reduced Good from two-fifths to one-fifth.

Retailers indicated a preference for merchandising only one grade of lamb. U. S. Choice continues to be the grade most widely offered at retail, but some retailers freely substitute Prime for Choice at no premium or discount.

Favorable trade reaction to the change in standards is a response to the lower incidence of excess weight and finish on the top grades, plus their wider availability. In the final analysis, the case for or against the change rests with the consumer. Whether or not reduction of heavier and wastier cuts at retail will offset the lower quality and conformation requirements of the new Choice and Prime grades has not been established conclusively.

Under the revised grade standards, producers of western type lambs were helped in marketing lambs lighter and with less finish. However, changing the Prime and Choice grades probably did not benefit native state producers of high quality lambs that formerly met the requirements for these grades. Nor is it likely to benefit feeders who will find that less of their services will be required as the industry adjusts to the grade changes.

Federal grades have an important positive effect on lamb marketing. They promote competition among buyers, among sellers, and between buyers and sellers. They facilitate trade and may lower total marketing costs. Both of these forces tend to prevent packers and retailers from widening margins at the expense of their suppliers and consumers. Federal grading helps the pricing system direct production by rewarding the producers of desirable lambs relative to producers of lambs that are less desirable from the consumer's point of view. Although Federal grading does not affect all segments of the lamb industry equally, the net impact appears to be favorable from the public interest and overall industry points of view.

ECONOMIC EFFECTS OF U. S. GRADES FOR LAMB

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INTRODUCTION

The Problem

In 1959 and early 1960, Federal grading was widely decried as the cause of depressed conditions in the lamb industry. Several groups of the sheep industry asked the Department of Agriculture to suspend grading of lamb and mutton. Throughout 1959 there was much controversy over discontinuing or revising the grade standards. In 1960, public hearings were held before the House of Representatives Committee on Agriculture. The Committee recommended that Federal grading of lamb and mutton be continued and requested the Department to report on the effects that Federal grading lamb and mutton had on producer and consumer prices.

In 1961, the American Producer's Council commissioned a private consulting firm, McKinsey, Inc., to study the outlook for the domestic sheep industry. This report was completed in May 1962 (8). 1/

Declining demand for both lamb and wool is a major source of difficulty. Lamb faces severe competition from other meats, and wool competes with several synthetic fibers. Wool prices and production declined so sharply in the late 40's and early 50's that Congress passed the Wool Act in 1954 providing payments to wool producers to insure a needed level of production in the event of a national emergency.

Except for 1958, prices received by farmers and ranchers for lambs since 1953 have been below the 1951-61 average. Prices fell sharply each year since 1958 reaching a 10-year low in 1961. Prior to 1958 lamb prices moved with cattle prices but were nearly always a little higher. These positions were reversed in 1958, and lamb prices remained below cattle prices.

Lamb prices have fallen in the face of low and declining per capita production. Before World War II lamb consumption was consistantly greater than 6 pounds per person; since 1950, consumption has averaged about 4. Despite the decreasing amount of lamb available for each consumer, lamb prices to farmers have fallen absolutely and relative to the prices of other meat animals.

The nature of the demand and the structure of the lamb market partly explain the decline in demand. Sales volume of lamb for most retailers is small compared to other meats. Few people eat lamb regularly and some never do. In the past independent retailers catering to a specialized trade sold most of the lamb, but they are disappearing. An increasing share of lamb is sold by retail food chains.

1/ Underscored numbers in parentheses refer to Literature Cited, p. 65.

Modern food retailers favor commodities which have strong consumer demand, are regularly available in large quantities of uniform quality, and have low labor and handling costs. Retail markups on such commodities tend to be lower than on slower moving items. Many characteristics of lamb do not meet these requirements of mass retailing.

In many areas of the country only a small proportion of the consumers buy lamb, thus retailers have little incentive to carry or display it in a prominent place. Certain cuts of lamb, such as the legs and loin, move readily while less desirable cuts are difficult to sell. But often only carcasses are available on a volume basis. Lamb carcasses are small relative to beef, and labor costs per pound of cutting and handling are higher. Many butchers have little experience with lamb and dislike handling it. Many retailers believe that lamb has a shorter shelf life than other meats, and that waste is higher. Little of it goes into hamburger or other ground meat. These factors have made retailers reluctant to handle lamb. Retailing margins are high, but low volume and high costs have kept profits low. Consumer and supermarket indifference to lamb reinforce each other to the detriment of lamb sales.

Retail lamb prices have not fallen nearly as much as farm prices since 1958. An increasing share of the difference is reflected in higher margins at the packer and retail levels.

Role of Grades in the Modern Market

Quality identification is essential in today's wholesale meat market where transactions involving tons of meat and thousands of dollars must be made quickly and with confidence on the part of both buyer and seller. Most retail firms have quality and other specifications that sellers must meet. Buyers for many large retail firms buy from widely dispersed plants and cannot reasonably inspect each carcass before bidding. Buyers for smaller firms (often, the butcher) may have too many responsibilities to personally inspect each carcass. Both buyer and seller must be able to describe quality reliably and accurately before delivery.

Successful quality communication over a large, widely dispersed market requires some type of grading system. As a commodity, meat has a number of attributes which vary widely. Buyers in both the wholesale and retail markets are aware of this variation. They are aware that their customers have strong preferences and are willing to pay to satisfy them. A system of successful grades separates the product into categories on the basis of similar characteristics. 2/

Grades must be meaningful to consumers as the ultimate users of the commodity. Value differences between grades exist largely because consumers are willing to pay different prices for different qualities. However, a successful grading system cannot be completely oriented toward the consumer, but it must be useful at all market levels.

2/ Successful grading systems depend ultimately on the characteristics of the product to be graded and consumer preferences. But present knowledge about the ordering and stability of these preferences is so vague that operational grades are groupings of carcass attributes evaluated on the basis of knowledge and arbitrary distinctions.

Only if a stable relationship between consumer preferences, consumption attributes (such as flavor and tenderness), and carcass attributes (such as fat marbling, Footnote 2 -- Continued

color, and age) exists and can be described, could optimum grades be defined assuming no change in the cost of grades. (No change in costs is expected for small changes in the number of grades.)

An optimum set of grades would maximize consumer satisfaction. The elements of such a set of grades would be:

(1) $(Q_{11}; Q_{21}; \ldots; Q_{n1})$ where Q_j is a grade describing $_j$th carcass.

(2) $(Y_{11}; Y_{21}; \ldots; Y_{m1})$ where Y_{ij} is a characteristic of $_i$th attribute of $_j$th carcass measurable in consumption.

(3) $(X_{11}; X_{21}; \ldots; X_{R1})$ where X_{ij} is a characteristic of $_i$th attribute of $_j$th carcass measurable in the carcass.

To grade a carcass, the X's are observed; the Y's estimated. Finally, the Y's are evaluated and combined into a Q.

The problem is to define the rules by which X's are converted into Y's and Y's combined into a Q. The relationships between X's and Y's are physical ones:

$$
\begin{aligned}
(4)\quad Y_{11} &= f_1\,(X_{11}; X_{21}; \ldots; X_{L1}) \\
Y_{21} &= f_2\,(X_{11}; X_{21}; \ldots; X_{L1}) \\
&\ \vdots \\
Y_{m1} &= f_m\,(X_{11}; X_{21}; \ldots; X_{L1})
\end{aligned}
$$

If Y_1 were tenderness, the level of this Y would be some function of the observable X's in the carcass which affect this Y, such as age and marbling. Given the Y's the value of these attributes to consumers would determine the rules by which they would be combined into Q:

$$(5)\quad Q_1 = f_{(m+1)}\,(Y_{11}; \ldots; X_{m1})$$

There is not enough information about either of these relationships (carcass attributes to consumption attributes and consumer preferences for consumption attributes) to allow definition of optimum grades. Present grades are based on estimates of (and assumptions about) these coefficients. Still, the criterion for a useful grading system is not the degree to which it approximates the optimum but its net benefit to users.

This discussion explains why the industry is not seriously concerned with attempts to define optimum grading systems. It also indicates that the most critical data requirements are for a set of rules to use in combining Y's into Q. Experience with human uncertainty indicates that these data are also the least likely to be developed.

This suggests that dual grading systems now in development would eliminate a serious weakness of current Federal grades. Such a system would separate the Y which is most difficult to combine with others. It would, however, still be necessary to combine several Y's, for example, levels of tenderness and levels of flavor, and to separate meaningful levels of each Y. In view of the uncertainties involved the more measurements that can be attached to carcasses, the more precise Federal grades can be.

Such a stipulation increases the number of carcass attributes that must be evaluated and widens the role a grading system plays. A successful system will help packers communicate with wholesalers and retailers and, indirectly, help consumers communicate with producers.

Quality at retail cannot be described exactly. It depends on the preferences consumers hold for the eating characteristics of meat, and all consumers do not agree. Few consumers can say how much flavor they will give up to avoid a given amount of fat, or even if the two are closely related. On the other hand, grades currently in use are intended to define quality areas consistently.

Some animals and cuts are valuable because their meat has good color, is firm, and is well interspersed with fat, a condition thought to indicate tenderness and flavor. Others are valuable because they have at least a minimum amount of quality and a high proportion of meat to bone and fat. Retailers buying at wholesale usually prefer carcasses that will yield a high proportion of meat. Many are less certain of the relationship between established quality indicators and consumer satisfaction.

Thus, any grading system faces a dilemma. 3/ The grades are necessarily the result of compromises between exclusive objectives. The more precise the system the more cumbersome and costly it becomes. The less precise, the less buyers and sellers can use each grade to define quality.

In this sense, the present system of Federal grades for lamb is not optimum, nor would it be expected to be. Federal grades have a more limited objective of providing information in the wholesale and retail markets that will enable consistent choices with a minimum of effort.

Federal grades attempt to provide this information a number of ways. They provide a basis for separate (although interdependent) prices for the various quality categories. On the basis of these prices of the different grades the supply can be allocated more precisely among customers who have varying preferences. Separate price ranges for individual grades improve communication between market levels. They allow producers to interpret responses of buyers and thus lead to a more efficient allocation of resources. This is done by improving incomes of producers who properly relate these price signals to their appropriate quality categories.

Federal grades are provided to help buyers and sellers interpret prices and price information. They make possible a program of market news which facilitates trading between markets and keeps the various markets in line with each other. A nationwide market becomes more efficient when Federal grades are used.

The Federal quality standards are intended to widen the markets for many buyers and sellers. Availability of federally graded meat reduces the importance of dealing only with sellers of established reputation. This certification greatly increases the number of packers that retailers can confidently negotiate with over the telephone. It widens the base of competition by allowing many more packers to compete effectively with the packers who have established brand names in the widely dispersed wholesale market.

Grading is made available in an attempt to lower costs of marketing. The assignment of lamb into grades by an impartial, expert grader reduces the number of

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3/ A dual grading system for beef that separates yield of lean meat from quality attributes has been initiated on a trial basis.

sorting operations necessary for customers to find the quality they prefer. It reduces the cost of both buying and selling by reducing the amount of inspection necessary during negotiation.

Finally, Federal grading is an attempt to establish a common language for product promotion. As such, it provides a factual basis for product differentiation and product development. Consumer confidence in the product may be improved by allowing consumers to more accurately and consistently choose the quality they prefer. If consumers are able to buy a less variable product, they are expected to be willing to buy more at the same price. Consumer demand thereby is enhanced.

Grading Problems

The problems of Federal grading arise from their differential impact on and within various segments of the lamb industry. Dissatisfaction with Federal grading ranges from those who feel the service should be completely eliminated to those who feel the grade standards should be designed for their benefit. Other groups favor Federal grading in principle because their market position has been improved through use of Federal grades.

Two separate but related problem areas emerge from the conflicting interests inherent in Federal grading. The first involves the general economic impact of Federal grading on the market structure for lamb, principally as it influences the relative competitive position of producers, packers, wholesalers, retailers, and consumers. Both the type and the extent of competition affect marketing margins and producer and consumer prices. The other major problem area is concerned with what constitutes an optimum or more desirable set of grade standards. How many Federal grades should there be, and what qualities or characteristics should be included in each grade? Final demand for lamb, marketing efficiency, and distribution of returns to producers are affected. Consumer preferences, the nature of production, and the existing market organization must all be taken into account to resolve this question. The nature of mass retailing today leads to pressures for the bulk of a commodity to fall into one grade which is generally acceptable to most of the consuming public. This may be counter to the preferences of more discriminating consumers desiring to choose from more grades.

Federal grade standards represent a compromise of diverse interests involving industry groups and the general public. This was clearly demonstrated by the conflicting interests which led to the recent revision in lamb standards. (12)

The levels of lamb quality included in the Choice grade are of primary interest to the industry. The bulk of the demand for federally graded lamb is for U. S. Choice, and it serves as a goal for most producers. Much of the pressure on Federal grades for lamb in 1959 arose out of a disagreement over the quality levels that were included in U. S. Choice. Federal standards for lamb were designed on the basis of meat-type characteristics more prominent in native lambs. A smaller proportion of western than native lambs met conformation standards for U. S. Choice prior to the 1960 revision. In an attempt to qualify for U. S. Choice by improving quality to offset a lack of conformation, many lambs were fed to heavier weights and discounted in price. This in turn led western producers to oppose Federal grades as such, or the grade standards in use at that time. The lower conformation requirements in the new standards increased the proportion of western lambs grading U. S. Choice. More lambs can now be sold directly off grass for slaughter.

Native state lamb producers favored the old Federal grade standards. They produce lambs primarily for meat--lambs which are lighter and younger when marketed. These lambs develop more internal feathering without excessive outside fat; age or weight are not problems. Higher proportions of native than western lambs qualified for Prime and Choice under the old standards; natives usually brought higher prices than fed western lambs.

The West Coast packers who generally favor Federal grading in principle wanted the standards lowered. The extensive use of federally graded lamb in the western market and, in particular, the pressure to supply the market with more U. S. Choice was largely responsible for their stand. Packers who depend on Federal grades in their selling operations generally prefer lower standards for U. S. Choice to ease their supply problems.

Retailers using Federal grading also want large dependable supplies of lamb stamped U. S. Choice, but they want the quality consistent with maximum consumer satisfaction. Consumers want tender and flavorful lamb, but they object to excessive fat. Consumers need a reliable guide to help them choose consistent levels of quality in successive purchases. One test of consumer satisfaction with the new grades is the change in use of Federal grades by retailers. The assumption is that retailers will limit their use of the Federal grades if sales decline or customers complain about quality.

The foregoing discussion relates to the conflicting interests and considerations involved in the change in grade standards. The other major problem area concerns the effect of Federal grades on market structure and competition within the industry. The basic conflict here is that U. S. Choice and U. S. Prime are more than quality designations which facilitate wholesale trading and price making. They often serve as national brand names used in retail merchandising. The national packers with their own brand names generally oppose Federal grades because they have improved the competitive position of the independent packers. 4/

Most retailers approve of Federal quality certification in principle. Use of Federal graded lamb widens their supply area, does not tie them to a particular packer, and provides a means of quality control with a widely accepted merchandising label. Once quality is established, negotiation can be carried out on a price basis.

Those principally opposed to Federal grading maintain that the United States Department of Agriculture has fostered a merchandising symbol in U. S. Choice, where only private labels should exist. There is, however, only incidental similarity of purpose between private brands and Federal grades. Private brands are the property of a single firm and their objective is to help that firm. They are costly to establish and may keep some competitors out of the market. These brands have only the firm's own restrictions on quality. Federal grades, on the other hand, are designed for the use of the entire industry. The actual grading is performed by an impartial third party to ensure the reliability and uniformity of the grades over time and space.

Objectives and Analytical Framework

Purposes of this study are (1) to analyze and evaluate the economic impact of Federal grades on competition, prices, and demand for lamb and (2) to appraise the impact of the 1960 revision in lamb standards. These objectives encompass the two

4/ The term "national packer" as used here includes 9 firms with national distribution systems who were important lamb slaughterers in 1960.

major areas of conflict involving Federal grading. The results should clarify the role of Federal grading in the marketing of lamb, particularly in relation to declining demand for lamb and depressed conditions in the industry.

The framework of analysis is that of market structure theory, utilizing the key concepts of structure, conduct, and performance. 5/ Structure affects conduct and performance of an industry, but conduct may also alter structure. Basic elements of structure are number and size of firms, product characteristics, conditions of mobility of firms, and level of knowledge in the market. Interrelationships also exist between these elements.

The way in which lamb is branded or graded is one of the elements of the structure of the market which ultimately affect industry performance. The hypotheses examined here are that (1) the structure of the lamb market affects the use of Federal grading or private labeling of lamb, (2) Federal grading and the extent of its use also affects the structure of the market through its effect on knowledge of prices and qualities of lamb, ease of entry of firms or potential entry, and change in the extent of the market available to any one firm, (3) the use of Federal grading affects performance of the industry by altering competition in the marketing of lamb, costs of marketing, and consumer demand, and (4) the structure and product requirements of the lamb industry determine how grades should be constituted to best serve the needs of all segments of the industry.

Use of Federal grades before and after the change in grade standards is one measure of the value of the change to the lamb industry. Changes in prices and production patterns are other results that will be analyzed.

Procedure

Much of the basic data were obtained through a comprehensive survey of the meat packing, wholesale, and retail segments of the lamb industry. In order to determine the factors which underlie management decisions on grading policy and related pricing practices and their impact on market structure and performance, the "depth probe" type of interview was used. Interview guides were developed to allow for needed flexibility in different lines of questioning.

Particular emphasis was placed on the meat packing segment of the industry where most of the Federal grading takes place. The survey covered the 20 major lamb packers who slaughtered over 100,000 lambs in 1959 and a sample of 20 smaller packers selected on the basis of their location to represent different producing and market areas. This coverage represented over 90 percent of the lamb slaughtered under Federal inspection in 1959. The three largest lamb slaughterers have multiple plant operations located throughout the United States. Because of their impact on the total lamb market and because production patterns and grading practices differ by region, data were gathered from strategically located plants of these three firms as well as from their headquarters locations.

Food retailers in 6 major cities were selected on the basis of total dollar sales. The 10 leading food chains, based on total sales, were included without regard to location. The six cities selected were representative of types of lamb consuming and grading areas. Most emphasis was given to major centers of lamb consumption

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5/ The use of the term "market structure" in this report will, in general, be consistent with that used by Bain (1).

located on the east and west coasts. In 1954, California, New York, and Massachusetts accounted for over 53 percent of total lamb consumed in the United States. Consequently, San Francisco, Los Angeles, New York, and Boston were selected to represent the major volume of lamb sales as well as high per capita consumption. Omaha and Miami were the other selected cities. Omaha represents the midwest area where consumption is generally low. Miami also represents an area of low consumption, but, more important, a city where Federal grading is required. Effects of the change in grading standards could best be observed where they were used exclusively.

For the category of food chains with 11 or more stores, the 5 largest in each city were chosen, plus 25 percent of those with over 5 stores. This group included national, regional, and local chains. Food chains with 2 to 10 stores were sampled at a rate of 15 percent. A fixed number of one-store, independent retailers based on city size (because store population was unknown) was randomly selected in each city. The sample included 158 retailers.

In addition, 33 wholesalers and jobbers in the six cities were interviewed. All interviews were made from December 1960 to February 1961 which allowed time for the firms to have made an appraisal of the new grade standards initiated in March 1960.

In addition to the survey data, secondary data, published and unpublished, were used to supplement the survey findings. Price analyses also were made to determine how lamb prices respond to lamb supply, income, and supplies of competing meats, as well as to test the effect of the change in grade standards on producer prices.

USE OF FEDERAL GRADES FOR LAMB

Use in the Wholesale Market

In the wholesale lamb market the traditional role of the wholesaler has been partially absorbed by meatpackers and retailers. Wholesalers (independent meat wholesalers) handle less than one-third of the lamb sold in the wholesale market. Packers have long by-passed wholesalers and sold directly to retailers, first through packer-branch houses and later, as retail chains came on the scene, directly to the central purchasing offices of chains. Thus, the market conduct described here involves packers, wholesalers, and retailers in the wholesale market.

In this section the quality identification aspect of market conduct in the wholesale lamb market is described in detail. 6/ The use of Federal grading and alternative methods of quality identification are compared.

6/ The object of market structure research is to be able to predict industry's performance on the basis of observations of market structure and the conduct of firms in different market-structure situations. Although this analysis uses a market structure approach in several sections, its objective is much more restricted. The interest here is focused on a single variable of market structure, the availability of Federal grading for lamb and the market conduct associated with this availability, namely the use of Federal grades for lamb. Hypotheses about the relationship between this aspect of market conduct and a number of market structure variables; between the market structure variables and market conduct; between both market structure and market conduct and industry performance have been presented. These tests and the conclusions are presented in the sections that follow.

Sources and Distribution of Lamb

Packers reported that more than two-thirds oftheir lamb is sold directly to retail food outlets, the bulk of it to chains with 11 or more stores (table 1). Most of the rest goes to wholesalers. Only 5 percent is sold directly to HRI(hotels, restaurants, and institutions). Little difference in this pattern was reported among types of packers. Wholesalers, including jobbers, sell more to small retailers and to HRI than to retail food chains. A final disposition of packer lamb sales shows that retail chains with 11 or more stores handle 49 percent, other retailers 35 percent, and HRI 16 percent.

Wholesalers generally buy from national packers, except onthe West Coast where independent packers are the dominant suppliers. Wholesalers indicated that although they purchase from the largest packers they seldom make all their purchases for a week from one packer. Most usually deal with three or four packers.

Retailers purchased 78 percent of their lamb directly from packers, including packer branches (table 1). They purchased 20 percent of their lamb from wholesalers and 2 percent from their own packing plants.

Four retail firms supplied part of their needs from their own plants. Two of these are local chains operating in a single city. The other two are among the 10 largest chains in the United States with operations in many cities. One of the four supplied only 10 percent of its lamb from its own plant. The other three satisfy 80 to 100 percent of their own lamb supply requirements.

Type of Lamb Grading Used

Forty percent of commercial lamb and mutton production was federally graded during the 1960 marketing year (table 2). Part of this grading was ordered by meatpackers, part by wholesalers. Packers reported federally grading 28 percent of their sales; wholesalers 38 percent. Wholesalers bought 32 percent of their lamb federally graded. Thus, a total of 70 percent of their sales was federally graded.

Retailers indicated that 53 percent of the lamb they purchased was federally graded. This percentage (high relative to packer and Federal Grading Service figures) was influenced by the limited sample of small retailers. 7/ It indicates that small firms not sampled buy a smaller proportion of their lamb federally graded than do those sampled.

The extent to which firms use Federal grading varies sharply by firm size (table 2). Small packers depend much more heavily on Federal grading than do large packers. The 10 largest chains surveyed buy a smaller proportion of their lamb federally graded than do other chains.

More than four-fifths of packers' sales to the hotel, restaurant, and institution trade is federally graded, less than one-half of their sales to chains, and about one-fourth of their sales to wholesalers and small retailers (table 3). Only about one-twentieth of the lamb that packers sell through their branch houses is federally graded. Nearly three-fourths of the lamb small packers sell to chains with 11 or more stores is federally graded while two-fifths of the lamb national packers sell to these chains is federally graded. More than two-fifths of the lamb small packers sell to small

7/ These data contain an unknown bias because small chains and single-store retailers were sampled only in selected cities.

Table 1.--Distribution of sales and purchases of lamb and mutton at wholesale, by type and size of firm, 1960

Type and size of firm	Sales to --				Total
	Large and medium chains 1/	Small retailers 2/	Wholesalers	Hotels, restaurants, institutions	
	Percent	Percent	Percent	Percent	Percent
Packers:					
9 largest firms 3/	40	25	30	5	100
Large independents	41	32	22	5	100
Small independents	34	29	30	7	100
All packers	40	26	29	5	100
Wholesalers	26	37	--	37	100
	Purchases from --				Total
	Packers direct	Packer-branch houses	Own packing plant	Wholesalers	
Retailers:					
Large chains 4/	84	1	6	9	100
Medium chains 5/	71	17	2	10	100
Small chains 6/	69	15	1	15	100
Single-store firms	46	23	0	31	100
All retailers 7/	63	15	2	20	100

1/ Food chains with 11 or more stores.
2/ Food retailers with less than 11 stores.
3/ Armour, Cudahy, Dubuque, Hormel, Hygrade, Morrell, Rath, Swift, and Wilson.
4/ 10 largest food chains based on total sales.
5/ Food chains with 11 or more stores except 10 largest.
6/ Food chains with 2 to 10 stores.
7/ Weighted average, proportions by size of firm groups weighted by sales distribution reported by 1958 Census of Business (11).

Table 2.--Importance of U. S. grading and packer branding, by segments of the wholesale market, 1960 1/

Quality identification	Purchases by retailers					Wholesaler		Sales by packers			
	All retailers 2/	Chains 3/			Single store firms	Sales	Pur-chases	Total	National packers 4/	Large independ-ents	Small independ-ents
		Large	Medium	Small							
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
U.S. graded and rolled...	53	44	62	68	54	70	32	28	21	45	58
Packer branded	20	21	21	30	17	7	7	39	52	3	4
Unrolled 5/...	27	35	17	2	29	23	61	33	27	52	38
Total....	100	100	100	100	100	100	100	100	100	100	100

1/ Marketing year March 1960-February 1961.

2/ Weighted average, proportions by size of firm groups weighted by sales distribution reported by 1958 Census of Business. (11).

3/ Large chains, 10 largest based on total sales; medium, operated 11 or more stores except 10 largest; small, operated 2 to 10 stores.

4/ Armour, Cudahy, Dubuque, Hormel, Hygrade, Morrell, Rath, Swift, and Wilson.

5/ Not rolled with a Federal grade or packer brand.

Table 3.--Importance of U. S. grading and packer branding by packers' wholesale outlet, 1960

Type of packer and quality identification	Wholesale outlet: Large and medium chains 1/	Small retailers 2/	Packer-branch house	Wholesaler	Hotel, restaurant, and institution
	Percent	Percent	Percent	Percent	Percent
Sales of --					
All packers:					
U.S. graded and rolled	44	27	4	27	81
Packer branded	26	47	66	21	9
Unrolled 3/	30	26	30	52	10
Total	100	100	100	100	100
National packers:					
U.S. graded and rolled	39	20	4	23	57
Packer branded	40	65	69	28	25
Unrolled 3/	21	15	27	49	18
Total	100	100	100	100	100
Independent packers:					
U.S. graded and rolled	49	41	6	36	98
Packer branded	1	8	6	1	0
Unrolled 3/	50	51	88	63	2
Total	100	100	100	100	100
Small independent packers:					
U.S. graded and rolled	72	43	0	48	83
Packer branded	1	6	0	6	0
Unrolled 3/	27	51	0	46	17
Total	100	100	100	100	100

1/ Food chains with 11 or more stores.
2/ Food retailers with less than 11 stores.
3/ Neither rolled with a Federal grade nor packer brand.

retailers compared to only one-fifth of sales of national packers to these retailers is federally graded. The breakdown by size of packer shows that important buyers demand federally graded lamb from small sellers but accept packer branded and unrolled lamb from large.

Packers put their private brands on nearly two-fifths of the commercial sheep and lamb slaughter in 1960--about the same proportion that was federally graded (table 2). Not all Federal grading takes place at the packing plant. Of the lamb federally graded in 1960, about three-tenths was graded after it left the packing plant.

Wholesalers buy and sell less than one-tenth of their lamb packer branded. Retailers surveyed said that about one-fifth of all lamb they purchased carried packers' brands. Firm size is correlated with the proportion of lamb purchases packer branded. Nearly two-thirds of national packers' sales to independent retailers were packer branded. Of total sales of small independent packers' to chains with 11 or more stores only 1 percent was branded, while nearly 75 percent was federally graded.

Only a small amount of lamb was branded by independent packers, but national packers branded more than one-half of their lamb. Their large volumes of the national packers heavily weighted the total so that packer-branded lamb accounted for nearly as large a proportion as did federally graded lamb, and larger than unrolled. 8/ Packers sold about one-third of their lamb unrolled in 1960. Retailers purchased a somewhat smaller proportion unrolled. Wholesalers reported buying more than one-half of their lamb unrolled but selling less than one-fourth the same way. Small packers sold more of their lamb unrolled than did their large competitors. Independent retailers purchased relatively less unrolled than did the largest group of retailers. The largest part of the packers' sales to wholesalers was unrolled. In contrast, only a small part of their sales to hotels, restaurants, and institutions was unrolled.

Retailers using the Federal quality guarantee reported doing so primarily for the following reasons: (1) Federal grades have merchandising value; consumers look for the Federal grade stamp on lamb; (2) Federal grades are a good method of selection of uniform quality; (3) Federal grades protect buyers, sellers, and consumers; and (4) in general, Federal grades facilitate the trading transaction.

Generally, retailers indicated confidence in the impartial, consistent accuracy of Federal grades for lamb, whether or not they relied on Federal grades completely in their purchasing and merchandising. Many large retailers maintained that differences in Federal graders lead to noticeable differences in the grades coming from different parts of the country, but most indicated that these differences were as small as could be expected.

Federal grades serve in some cases as complete quality specifications. For others they provide general specifications within which further quality distinctions are made. Without Federal grades retailers would need to establish their own set of specifications without nationally recognized reference points. Costs of establishing and policing such requirements would be high. Rejection of carcasses would rise because of the communication problems.

Wholesalers indicated that most of the lamb they sell is federally graded because their customers demand it. Hotels, restaurants, and institutions, in particular, are

8/ The term unrolled refers to lamb neither rolled with a Federal grade nor packer branded.

quite specific in their demands for Federal grades on lamb. Wholesalers feel that their lamb is better able to compete with that of their competitors, particularly with the packer-branch houses, if it is U. S. graded. Federal grades are useful to them as a quality certification in dealing with customers.

National packers indicated that they federally grade as small a proportion of their lamb as possible, consistent with meeting competition from their smaller competitors and fulfilling demands of customers. Many of them feel that Federal grading is more costly (primarily indirectly) than using their own grades. Independent packers use Federal grades because it puts them on a more equal footing with their large competitors and satisfies the prevalent retail demand. Small packers gain general acceptance of their products by having them federally graded. They feel that without Federal grades they would be unable to compete with the private labels of the national packers.

Retailers that buy packer-branded lamb do so for some of the same reasons that other retailers attribute to using Federal grades. They claim to be satisfied with the quality offered by their particular suppliers and feel that it best satisfies customers' demands. In most cases, however, retailers who buy packer-branded lamb did so because they thought they could buy an acceptable quality lamb at a lower price.

National packers, obviously, are the strongest proponents of packer brands. They feel that the Government is undermining their interests by providing their competitors a nationally known brand backed by the U. S. Government at a nominal fee. They feel this is unfair competition with their own brands that have been developed and financed privately over many years.

Lamb is sold unrolled for a number of reasons. Lamb equivalent to U. S. Good and below is usually not rolled because of the stigma of the low Federal grade. Many retailers buy unrolled lamb because (1) of a price advantage, probably related to quality, (2) they can use their own private label, (3) it is being offered by their usual meat supplier and they may not handle enough lamb to justify ordering from a separate supplier, (4) their own meat buyers personally select lamb carcasses from packers' coolers and they feel no grading system is necessary, and (5) they are indifferent to the type of grading as they feel all lamb comes from young animals that are relatively homogeneous in quality.

Many wholesalers and kosher retailers sell unrolled lamb. Most kosher lamb is sold unrolled because of the premium on moving the meat quickly. Many wholesalers prefer to purchase unrolled lamb and have Federal grading done themselves. This is particularly convenient when shipping long distances. Chill in transit raises the probability of a carcass making a high grade and reduces the time the packer must hold carcasses.

Grade Composition of Lamb

The Grading Service reported that about 80 percent of all lamb and mutton graded and rolled by them was U. S. Choice during the 1960 marketing year, 16 percent U. S. Prime, and 3 percent U. S. Good and lower (table 4). This composition agreed closely with that reported by meatpackers for the lamb they had federally graded. They estimated that a larger proportion of their packer branded and unrolled lamb, however, would have graded Good if it had been federally graded and a smaller proportion Choice. About two-thirds of the total did, or would have graded Choice, one-fifth Good, and one-tenth Prime. The national packers reported that a higher proportion of their lamb would have graded Choice than was reported by the independents.

Table 4.--U.S. grade equivalents of lamb: Distribution of purchases and sales at wholesale, 1960 1/

Item	Purchases by retailers					Sales of wholesalers	Sales of packers				Distribution of total federally graded
	All retailers 2/	Chains 3/			Single-store firms		All packers	National packers 4/	Independents		
		Large	Medium	Small					Large	Small	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
ALL LAMB											
U.S.Prime	7	3	2	6	11	11	11	9	17	26	--
U.S.Choice	83	96	96	91	70	84	68	69	64	64	--
U.S.Good 5/	10	1	2	3	19	5	21	22	19	10	--
Total...	100	100	100	100	100	100	100	100	100	100	--
U.S. GRADED AND ROLLED											
U.S.Prime	10	5	4	8	16	11	13	7	21	17	16
U.S.Choice	86	93	96	91	78	88	82	88	74	77	81
U.S.Good 5/	4	2	6/	1	6	1	5	5	5	6	3
Total...	100	100	100	100	100	100	100	100	100	100	100
PACKER BRANDED											
U.S.Prime	1	2	1	0	0	9	12	11	7/ 54	2	--
U.S.Choice	80	96	94	94	63	69	65	66	18	81	--
U.S.Good 5/	19	2	5	6	37	22	23	23	28	17	--
Total...	100	100	100	100	100	100	100	100	100	100	100
UNROLLED 8/											
U.S. Prime	4	0	0	6/	9	12	15	12	15	40	--
U.S.Choice	75	100	97	42	59	78	57	60	54	40	--
U.S.Good 5/	21	0	3	58	32	10	28	28	31	20	--
Total...	100	100	100	100	100	100	100	100	100	100	100

1/ Marketing year March 1960-February 1961. Totals may not add because data by type of grading were estimated separately.
2/ Weighted average, proportions by size of firm groups weighted by sales distribution by 1958 Census of Business (11).
3/ Large chains - 10 largest based on total sales; medium - operated 11 or more stores; small - operated 2 to 10 stores.
4/ 9 largest packers which are Armour, Cudahy, Dubuque, Hormel, Hygrade, Morrell, Rath, Swift, and Wilson.
5/ U. S. Good and below.
6/ Less than 0.5 percent.
7/ Small sample, largely explained by 1 firm whose packer-branded lamb was all estimated to be the equivalent of U. S. Prime.
8/ Neither rolled with a Federal grade or packer brand.

All types of packers indicated that their packer-branded and unrolled lambs would not have graded as high as the lambs they had federally graded. It was often reported that the Federal grader was instructed to roll only those lambs that would grade Choice and Prime.

Federally graded lamb handled by wholesalers contained a higher proportion of Choice than did all sales of packers. Wholesalers reported less Prime and only a trickle of Good or below. The packer-branded and unrolled lamb sold by them was generally of lower quality than the lamb they sold federally graded. Compared with the packers, the total grade composition reported by the wholesalers contained a much greater share of Choice, the same share of Prime, and a smaller share of Good or below.

Over nine-tenths of the lamb purchased by the retailers operating 11 stores or more was reported as being Choice or its equivalent, whether or not it was actually graded. Small retailers reported smaller proportions of Choice and larger proportions of Good. The small retailers, too, agreed that the lamb actually federally graded was higher in quality than the lamb sold packer branded or unrolled. Total retail purchases, weighted by sales of different size of firm groups, shows this same relationship.

Grading Service figures were higher for Prime and lower for Choice than those reported by packers, wholesalers, or retailers. Low reports of Prime may result from the practice, noted particularly on the West Coast, of merchandising a mixture of Prime and Choice. Often these grades were purchased and sold together at the same price so their separation was difficult.

Quality Communication in the Wholesale Market

Quality Communication by Retailers

Of total retailers interviewed about a fourth indicated purchasing most of their lamb by personal selection from packers' coolers. These retailers appeared more price conscious and better informed about meat quality than the other retailer buyers. Most of them were indifferent to the type of grading offered.

Most of the remaining retailers (especially on the West Coast) prefer buying federally graded lamb. Usually their reasons center on the merchandising value of the Federal stamp. A few firms had their buyers select carcasses from unrolled lamb with the proviso that they will be rejected if they do not make a desired grade. In effect the minimum standards of the chosen Federal grade, usually U. S. Choice, become the minimum standards of acceptance. Above that, individual specifications are applied.

Retailers purchase lamb supplies by three methods. (1) Most retailers purchase by telephone. Specifications are sometimes formalized with normal suppliers on a long-term basis so that quality is not a variable in day-to-day transactions. (2) Frequently, retailers have an informal arrangement with normal suppliers who have learned by trial and error the type of product desired. Repeat sales and occasional visits to packers' coolers help to establish the specifications wanted. Delivery and final sale is usually made subject to inspection by the buyer. Suppliers bear the cost of disposing rejected carcasses. Suppliers are careful to meet the specifications in order to avoid the problem of selling rejected carcass--usually at a loss. (3) Retailers purchase direct from salesman. Meat salesmen call on important retail meat buyers and orders are taken much as they would be over the phone. These salesmen make it their business to know the specifications of potential customers and may be responsible for selecting lamb carcasses. Most small retailers purchase lamb from car-route salesmen or "peddlers." This is the traditional method of selling wholesale lamb. It is becoming less common as small retail operations are being replaced by supermarkets, and car routes are disappearing.

Eighty-five retail firms reported procurement specifications in terms of Federal grades or their equivalent. Twelve firms surveyed rely entirely on the brand of a packer, while 19 others said that their suppliers know the kind of lamb desired without reference to either packer or Federal grades.

Over one-half of the retail firms interviewed specified a weight range within which lamb carcasses must fall. Often, only a top weight limit was given. Any lighter-weight carcass is acceptable as long as it meets certain other specifications, such as a given Federal grade. A 5- or 10-pound weight range frequently is specified, but the top end of the range is usually the most critical.

Of 90 firms specifying a weight range, only 4 accept carcasses exceeding 55 pounds on a regular basis. Some of the other retailers indicated that during the late winter months it often is necessary to go above 55 pounds in order to fill their requirements. Sixty firms specified a maximum weight between 50 and 55 pounds, with about an equal number specifying 50 as 55. The remaining firms specified maximums of 45 pounds or less.

Reasons for the preferred weight range center on two factors: (1) a desire for high cut-out of lean meat, and (2) consumer preference for certain size cuts. Wastiness and excess fat often were mentioned as being associated with heavier weights. A small amount of kidney fat, in particular, is a specification that buyers look for in determining the acceptability of a carcass. Many complaints were heard concerning the high proportion of fat on a carcass of otherwise desirable quality. This factor was often cited as the primary reason for liking the change in Federal standards in March 1960.

Size of cuts, the second reason for the weight requirement, was most frequently given in reference to leg of lamb and loins. The leg usually is merchandised as a single piece of meat so the size of the cut depends on the size of the carcass. Some of the small retailers experience difficulty in selling legs because of their size. For this reason they often buy smaller lambs than do larger retailers. If the carcass is small, however, the loin is small. To get a loin that will yield acceptable sized chops, a minimum weight is usually specified.

In addition to its influence on weight, the amount of fat was reported as a separate specification by 41 firms. Other factors, each mentioned by several firms, include conformation, color, age, covering or finish, firmness of meat, feathering between the ribs, fat streakings in the flank, and internal temperature of carcass and length of chill. Some of them are specified in lieu of using a formal grading system, but most are merely refinements of the Federal grades being used as a frame of reference.

Many retailers mentioned using USDA price reporting information in keeping abreast of current conditions in the lamb market. Federal grades are used in these reports as an important means of identifying quality. They serve as the focal point of reporting price information that is uniform throughout the United States and subject to less local interpretation than many other terms that apply to determine lamb quality. Without Federal grading, special interpretation would be needed for prices made under a wide range of circumstances. Quotations would need complicated reference to be meaningful and probably would lack precision or wide understanding by different segments of the trade.

Retail firms were asked what part of the Federal grade or Federal grade equivalent, if any, they specified in procurement. Some firms said it was impossible to determine the part of the grade they handled because of subjectivity and variation in determining grades. This objection was given more frequently by firms buying packer-branded and unrolled lamb.

Of those now merchandising U. S. Prime or its equivalent, five retail firms said they purchased across the entire grade. Nine others said they specified that their Prime must fall in the lower part of the grade, lower third, or half. Some of these firms said they now accept low Prime in order to maintain the same quality as the old U. S. Choice grade. They did not want high Prime because they thought it carried too much finish for their customers.

Of the firms that reported a preference within U. S. Choice or its equivalent, nearly the same number preferred one end of the grade as the other. Forty-eight firms want the top third or half, while 41 buy the lower third or half. Another 27 said they purchase across the entire grade.

Five firms handling Good or its equivalent buy across the grade, while 14 specify the top end of the grade. None wanted the lower part.

Quality Communication by Wholesalers

Since wholesalers buy lamb in volume, normally from a small number of suppliers, they are able to communicate quality requirements rather easily. The usual procedure is to purchase by telephone subject to approval on delivery. Although quality is often discussed in terms of Federal grades, much lamb is bought ungraded.

Wholesalers indicate that Federal grades benefit them most in selling. Since the wholesaler deals in service, he competes strongly in terms of quality. Federal grades are generally specified by a large part of his trade, including the HRI and government purchases. Federal grades become a quality certification which the wholesaler can point to in his sales to buyers for small restaurants and retail stores who do not know meat quality. Wholesalers reported that Federal grades are the most useful quality indicator available to them in merchandising their lamb because of its universal acceptance. But, they preferred selling packer-branded rather than unrolled lamb. Those that purchase unrolled lamb almost unanimously reported a policy of federally grading everything that would grade Choice and Prime and rolling lamb of lower quality only to fill specific orders.

Price Determination

About half the retailers interviewed said that they pay the asking price of their lamb suppliers. Many of them said: (1) There is no difference in prices among suppliers, (2) the difference was not large enough to justify "shopping" the market in view of their small volume, or (3) the service being provided by their suppliers is sufficiently valuable to them that they are willing to pay a premium price for it. The bulk of the retailers that pay the asking price of suppliers are small firms. They include 11 percent of the chains with 11 stores or more, 57 percent of the chains operating 2 to 10 stores each, and 75 percent of the single-store firms interviewed.

The remaining retailers resort to some form of price negotiation with their suppliers. This negotiation takes the form of price higgling, altering specifications to accept available supply, or "shopping" among alternative suppliers in search of lower prices. Some buyers indicated that this comparison was futile because of the similarity in asking prices of competitors. They continue to do so because of differences that exist during times of unsettled market conditions, or for some large retailers, when buying large volume for special sales. Some small retailers are able to pick up at special prices certain cuts that are complementary to the cuts currently being featured by other retailers.

One of the top 10 retailers pays the price asked by suppliers, but only after receiving offers. After offers are received from suppliers, the retailer purchases the quantity needed from the supplier or suppliers with the lowest price. Specifications, having been established beforehand, are not subject to negotiation.

Many retailers indicated that little price variation exists in their wholesale market for lamb of Choice and Prime quality. There are enough buyers preferring each of the various portions of U. S. Choice to minimize within-grade price differentials. Many retailers on the West Coast said they would not handle Prime even at a discount because it was too "wasty." Many times Prime was found mixed in with Choice in retail showcases. Both Prime and Choice were selling at the same price, having been purchased for the same price. This mixture appears to be a result of the change in standards but may not persist after producers are able to adjust feeding schedules more in line with grades demanded.

Eleven retailers reported that Choice costs more than top packer brands. A differential up to one cent per pound was reported. Several others said that ungraded lamb is cheaper than either U. S. graded or packer-branded lamb. According to these retailers, Choice is a more desirable quality identification than the packer brands, but either is preferable to unrolled lamb.

Some price variance is attributed to delivery terms. Discounts for warehouse delivery amounting to about 1/2 cent per pound were reported, but variations exist from none up to 1-1/2 cents.

Use in the Retail Market

Retailers were asked to evaluate the knowledge their customers have of lamb quality. The most general response was that customers look for an absence of fat and for a particular color of the meat. Some retailers said that customers look for quality identifications--retailers' brands, Federal grades, or packers' brands. Others feel that customers' confidence in a store's reputation is expressed by repeated purchases.

Of the retailers surveyed, 13 merchandise their own brand of lamb. Four of the 13 are among the 10 largest chains, 5 operate chains of 11 or more stores, 3 have from 2 to 10 stores, and only 1 was a single-store firm. Of the stores not merchandising their own label on lamb, many have private brands on other meats but do not use them on lamb.

Many retailers merchandising their own brands feel that Federal grades and, sometimes, packer brands are useful in supporting the image of quality they are attempting to convey. Four of the 10 largest chains indicated that more than 95 percent of their lamb purchases is federally graded. Each of these firms maintains a private brand on their products, although two of them were not using a private label on lamb in 1960.

Over half of the retailers interviewed have a policy of handling only federally graded lamb. Only 16 firms handle packer-branded lamb exclusively, while 12 merchandise only unrolled lamb. Twenty-one firms said they would accept any of the three types of grading under certain conditions. The remaining firms handle a combination of two types. The high proportion of firms handling Federal grades is due to the general acceptance of this method of grading in California and California's importance in the sample. Only nine retailers in California handled anything else, and all retailers there handled some lamb that was federally graded. Most of the firms relying on packer brands are in Boston. Firms with policies of buying ungraded lamb are primarily in New York.

Twenty-five retailers said that cost considerations determined the type of quality identification used. The type of grading is immaterial to them in either buying or selling lamb. Only four of these firms handle Federal grades exclusively. Five of the 16 firms handling only packer brands and 7 of the 12 firms merchandising only unrolled lamb gave one of these two reasons for doing so. The remaining firms carried a variety of grades.

Two large retail chains were among the 17 retailers that handled packer-branded lamb exclusively. One of the chains merchandised its own brand and carried brands of a number of packers. The other had an exclusive agreement with a packer, where the packer provided specially-aged meat which the retailer merchandised. In general, however, chains indicated that they preferred not to merchandise packer brands. They would do so occasionally, usually with the packer either paying part of the advertising cost or providing meat at favorable prices (or both). Retailers felt they were better off to merchandise their own brands or Federal grades than the competing brands of packers.

Two-thirds of the retailers interviewed gave merchandising as the reason for the type of quality identification used. Many retailers were impressed with the promotional value of Federal grades--they promote a given grade, usually U. S. Choice, much as they would a brand name. Some of them attributed the promotional value to the use of the word "Choice." Others, however, maintain that the name is incidental and that its acceptability is based on the Government certification. Regardless of this difference, retailers have spent millions advertising that their firms handle Choice. This quality image has become part of the firm's reputation.

Aside from promotion of a name, many retailers have developed their merchandising policies around a product they think best fits the desires of their customers. Retailers gave this reason for handling both federally graded and packer-branded lamb. How well the preferences of retailers represent the desires of consumers remains questionable. Retailers agree that consumers dislike waste, like tenderness, like a bright, clean, healthy color, like large chops, and like small legs of lamb. Some retailers are unimpressed with the traditional reasoning that fat interspersed in the muscles brings flavor and tenderness. They want a fat covering on the carcass to increase shelf life and to maintain the color, but except for this they feel the less fat the better.

Few retailers feel that fat is essential for flavorful and tender lamb and that quality lamb is well finished, although they too would minimize the amount of fat between the muscles and maximize the fat in the muscles. These retailers see a conflict between reducing the proportion of fat to lean below certain levels and maintaining a desirable flavor.

The consumer is neither well informed nor articulate on these points. The association between fat in the muscle and flavor and tenderness is neither obvious nor precise. Further, the effect of animal fat on the human system is not well known. As a result, the preferences of consumers are not easily discernible from the choices that have been made by retailers. Retailers are trying to find the key to an image of quality that appeals to the greatest number of consumers and at the same time minimize waste resulting from trim at the retail store.

Retailers were in wide agreement on the need for consistent and uniform quality lamb in their showcases. They want quality to be consistent from week to week. For a number of retailers this meant always selling the same type of lamb with the same label. For others it meant handling the same quality to as great an extent as possible regardless of label. Retailers who expressed the most interest in quality often depended on Federal grades for quality comparisons even when they handled packer-branded and unrolled lambs.

Fourteen retailers reported selling more than one grade of lamb. All but two of them are in California. Only 1 in 14 firms priced the grades separately. The others placed different grades in the same showcase at one price. None of the firms selling a mixture of Prime and Choice reported paying more for Prime. Usually the firm ordered Choice but accepted some Prime at the seller's request. Some retailers said they would accept no Prime because of waste and would only do so with a price discount. Combinations of Prime and Choice were most frequently sold, but Choice and Good were sold together by four firms. One firm reported selling all three grades federally graded and rolled that were in the same showcase at the same price. One firm reported selling all three Federal grades in the same showcase at the same price. Also, this 2-store firm carried its own private label.

The large majority that merchandise only one grade of lamb said this is the only system that works. Various reasons given were: (1) Consumers desire a standardized product, (2) customers would only be confused if confronted with more than one grade, (3) it is necessary to sell only high quality products to protect the reputation of the store, (4) not enough price and quality difference exists to justify merchandising two grades, and (5) not enough lamb volume is handled to justify stratifying quality. A few firms reported having offered two grades of beef in the past and then abandoning this practice. They said if two grades wouldn't work for beef, it certainly wouldn't for lamb.

Others said that lamb quality is more critical than beef quality. They do not feel as well qualified to distinguish it and they prefer to rely on the Federal grader's judgment rather than that of the seller.

Retail firms were asked what type of grading system they would prefer to have. Of the 154 firms, 80 said they like the present system of Federal grades being available but not mandatory. Not all the firms who liked the present system used Federal grades; some wanted to have the opportunity to do so or felt they were good for the industry. For example, one firm selling ungraded, kosher lamb wanted to keep the present system. Of the 10 largest chains, 8 are satisfied with the present system; the others reported no preference.

Twenty-five firms would prefer a compulsory Federal grading system. Some of them indicated a desire to eliminate unethical practices of advertising U. S. Choice and selling something else or of mixing in some ungraded lamb with Choice. Others do not trust packer brands and feel the industry would be better off if all lamb were graded by uniform standards and impartial graders. Of the 25 firms preferring a compulsory Federal grading system, 4 are in Miami where Federal grading is compulsory.

Another 22 firms want no grades. These firms want either to merchandise packer brands, their own private brands, or no brands. Interestingly, the number of firms preferring this method is less than the number preferring compulsory Federal grading.

Fourteen retailers were indifferent to the grading system and six did not answer. Some of the indifferent firms buy unrolled lamb and merchandise their own brand. They are indifferent as long as they are free to buy unrolled lamb.

Eight firms had varying suggestions for an improved system. Three want a system having narrower grades than any system now has. Two prefer Federal grades using a numbering system in place of grade names. One suggests having only two grades, lamb and mutton, and another wants three grades, lamb, yearling, and mutton. This firm says yearling is a desirable product that is not now being recognized in current Federal grades.

Use in the Live Market

For a decentralized marketing system to operate efficiently, a standardized language must be used by buyers and sellers. Quality information can then be relayed from buyers at all stages of the marketing channel back to producers. When this information is accurately and precisely communicated, producers are able to adjust product attributes in line with consumer demands. Close coordination of production, in turn, is rewarded by rising demands and prices.

Market prices often compress quality and quantity information into a single price. When a producer sees only one price he has no information regarding the various components or attributes of the product that are important to the buyer. This system may be efficient if it is easy and costs little to transmit information between buyers and sellers. But reliance on the information contained in a single price may result in serious misallocation of productive services when various product attributes are quite important to consumers. In this situation a system of contractual agreements accompanying prices may be necessary. Alternatively, a price reporting system that separates price according to levels of quality may be sufficient.

Producers of lambs have important alternatives in methods of production. Feeds, methods, and timing of feedings all affect the finished product. There is a wide choice of breeds from which to choose; some emphasize meat production, while others stress wool characteristics. In making choices the producer must be able to identify characteristics that are most desired by consumers. The Federal grading system is designed to supplement the pricing system in transmitting the necessary information for these choices.

Farmers must be able to estimate quality in order to interpret price reports available daily (often hourly) from livestock markets. These reports are useful to farmers either selling locally where a limited number of buyers may submit bids or in choosing among alternative markets. However, before price reporting can be useful to a farmer he must have some idea how his lambs will grade.

Estimating the carcass Federal grade equivalent of a live lamb may be difficult for a farmer who sells lambs only once or a few times a year. This uncertainty increases the farmer's desire to obtain a packer's bid on his lambs while they are still in the feedlot. In such an estimate the packer assumes the risk of estimating how animals will grade in carcass form. Packers know from past experience how large the errors in their estimates are likely to be. They adjust their bids accordingly so that on the average they do not suffer from miscalculations. Packers whose estimates have more error than those of their competitors need to bid lower to cover errors. This results in loss of business to competitors.

Many packers interviewed complained about bearing this risk. Those who maintained their own brands reasoned that this risk reduced the prices they could pay for lambs. However, the risk will be present regardless of whether packer brands or Federal grades are used to indicate carcass quality as long as high quality standards are rigidly maintained. The risk can be reduced only by making the quality level flexible or by purchasing on a carcass grade and yield basis as is currently being done to a limited extent.

MARKET STRUCTURE AND FEDERAL GRADING

The grading policy of a firm is an element in a pattern of behavior chosen in adapting to a given market situation. Among other elements in this pattern of behavior are policies concerning pricing, selection of products, merchandising practices followed, methods and amount of sales promotion used, and the means of coordinating or adjusting these various policies to specific market requirements or competitor's actions and reactions.

The type of grading best suited to a firm is dependent to a large degree on the particular set of circumstances under which the firm operates. These circumstances include, among others, the size and location of the various markets in which it buys and sells, product differentiation practiced in these markets, the pattern of industry change and growth over time, the methods and costs of obtaining and disseminating information within and among these markets, the relative size distributions of firms operating in these markets, the degree of freedom for new firms to enter these markets, and the size of plant and firm in this particular industry that is necessary for it to operate efficiently. These various dimensions of a market are commonly referred to as elements of market structure.

The structure of the wholesale market for meat has been rapidly changing for many years. A number of important packers, principally around Chicago, used their branch houses and car routes to break into the eastern markets once held by independent wholesalers. Retailers were small and required many special services, including store delivery. For the last 30 years, however, retailers have bought an increasing proportion of their meat directly from packers. These purchases bypass both wholesalers and branch houses; as a result, packers have been forced to discontinue many branch house and car-route operations.

Packers closed their branch houses and relied more and more on direct sales to retailers. Wholesalers increased their share of the market. Many have become specialized breakers or boners or developed other specialized services. Small retailers turned increasingly to wholesalers as number of packer branch houses dwindled.

Thus, time is an important dimension through which the forces of change can be traced. For the purposes of this report, however, geographical differences illuminate these forces more clearly. Because there is a rough separation of the two major lamb supply and market areas, the relationship between market structure and several aspects of firm conduct can be observed. Most of the lamb produced and slaughtered west of the Rockies is consumed on the West Coast. Lamb produced and slaughtered in the rest of the United States moves generally to the Northeast for consumption.

The hypothesis that market structure in which firms buy and sell significantly affects their grading policies is examined in succeeding sections. The structure of the wholesale and retail markets in the two areas is contrasted and differences in structure are associated with differences in grading policy. Finally, this relationship is evaluated and analyzed, and the pattern observed explained.

Structure of Eastern vs. Western Market

Wholesaler-Packer Market

Operations of wholesalers in the East differ from those on the Pacific Coast. Western wholesalers are smaller than those in the East. They purchase most of their lambs locally, whereas the eastern wholesalers purchase from a wide supply area.

Just as the structure is importantly different in the Northeast and Pacific areas, Federal grading is used to a much greater extent and in different ways in California than in New York. In 1960, more than 80 percent of commercial lamb slaughter was federally graded in the Pacific Coast area but less than 5 percent in the Northeast (table 5).

Although the lamb slaughtering industry historically has been heavily concentrated in a few large firms, a number of fast growing independents in both the East and West have been important in reducing the national packers' share of the market. 9/ In the East these independents are usually kosher slaughterers. 10/ Three large eastern independents who slaughtered 5 percent of total U. S. commercial lamb slaughter in 1950 increased their share to 7 percent in 1960. Three large western independents increased their share of total commercial lamb slaughter from 1 percent in 1950 to 5 percent in 1960.

These increases have been particularly important in the Pacific area where independents now account for 65 percent of commercial slaughter. Even though large

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9/ The four firms which were the leading slaughterers in 1955 accounted for 70 percent of the commercial sheep and lamb slaughter in 1916, 70 percent in 1935, and 69 percent in 1947. By 1950 their share was 64 percent and by 1960, 58 percent. Based on Unfair Practices in the Meat Industry (13, pp. 261-265).

10/ With one exception, all major lamb packers in the Northeast reported kosher slaughtering all lambs that qualify. The kosher market takes only the foresaddle, leaving the hindsaddle, including the loin and legs, to be marketed through other channels. Restrictions on the length of time allowed between slaughter and retail sale require some kosher lamb to leave the cooler before it is firm enough to grade. Kosher lamb is usually sold through small, specialty retailers who select personally the meat they sell and are not willing to rely on either private brands or Federal grades. Independent eastern packers sell over three-fourths of their lamb unrolled.

Table 5.--Lamb and mutton production: Quality identification by geographic area, 1960

Quality identification	Northeast	East North Central	West North Central	West South Central	Mountain	Pacific Coast
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
U.S. graded and rolled....	3	32	18	12	31	81
Packer branded.	20	29	62	53	19	11
Unrolled 1/....	77	39	20	35	50	8
Total.......	100	100	100	100	100	100

1/ Neither rolled with a Federal grade nor packer brand.

independents are important in the Northeast, four-fifths of the lamb sold at retail in that region is shipped in. Nearly half of this lamb comes from the West North-Central Region and the rest is divided among the other regions east of the Rockies. National packers account for more than two-thirds of the lamb consumed in the Northeast, nearly twice their proportion in the Pacific region.

In three important regions (West North Central, West South Central and Mountain) national packers continue to compete principally with each other for lambs (table 6). These areas together account for more than half the total of U. S. lamb slaughter. In 11 of the 12 most important live lamb markets in the United States, ranging east from Denver to Cincinnati, more than three-fourths of the lamb slaughtering under Federal inspection is done by the national packers. 11/ In half of these markets national packers account for all lambs slaughtered under Federal inspection; Chicago is the only market where no lamb slaughtering is done under Federal inspection. In four of these markets more than 92 percent of lamb slaughter under Federal inspection is accounted for by a single national packer, on three markets by two national packers, and on two markets by three national packers.

Rational economic behavior calls for firms to attempt to protect and enlarge their market share. This is done by price and quality competition and by altering consumer attachment through advertising and product differentiation.

The large lamb slaughtering plants of both independent and national packers have expanded in the last 10 years while small plants have declined in importance. Between 1950 and 1960 the number of federally inspected plants killing more than 200,000 lambs annually increased from 15 to 32; their average kill increased from 312,000 to 318,000 lambs per year. During this period the number of smaller-sized plants decreased. The large plants (average kill more than 200,000 lambs per year) increased their share of federally inspected slaughter from 40 percent in 1950 to 73 percent in 1960; all other sizes declined in importance.

11/ Chicago, Cincinnati, Denver, Fort Worth, Indianapolis, Kansas City, Oklahoma City, Omaha, St. Louis, Sioux City, Sioux Falls, and South St. Joseph.

Table 6.--Distribution of consumption and commercially slaughtered sheep and lambs, by geographic area, 1954

Area	Percentage of total		National packers' share of commercial slaughter 1/
	Consumption	Commercial slaughter of sheep and lambs	
	Percent	Percent	Percent
Northeast	50	16	27
East North Central	15	13	39
West North Central	3	30	100
South	3	2/	66
West South Central	2	8	62
Mountain	4	14	78
Pacific	23	19	35
U. S.	100	100	63

1/ Armour, Cudahy, Dubuque, Hormel, Hygrade, Morrell, Rath, Swift, and Wilson.
2/ Less than 1 percent.

Of the 217 federally inspected packing plants slaughtering lambs in 1960, 140 slaughtered fewer than 10,000 lambs. These plants slaughtered less than 1 percent of total lambs slaughtered under Federal inspection, a smaller share than 10 years earlier when there were 10 more plants.

Although total commercial sheep and lamb slaughter increased 400 million pounds between 1950 and 1960, this was done at 49 fewer federally inspected plants. During the 10-year period, 34 plants closed and 39 stopped lamb slaughter, only 16 new plants were opened, while 8 established plants initiated lamb slaughter (table 7).

Large lamb slaughtering plants increased both in numbers and importance, while small plants declined. Apparently, large plants are better able to compete.

At the wholesale level, fresh lamb is sold packer branded, kosher, U. S. graded, and ungraded. Packer branding is the only attempt at product differentiation in the usual sense of associating a quality image with a product and a firm.

Packer branding is substantial for national packers--52 percent of their lamb sales--and of minor importance for other packers. The national packers are so important, however, that nearly two-fifths of total commercial lamb slaughter was packer branded in 1960.

The lamb slaughtering industry on the West Coast is characterized by rapid growth, due in part to a rapidly growing market and increased local lamb feeding. Independents account for nearly two-thirds of the market. They do not use private brands but federally grades most of their lamb that will qualify for Prime and Choice. Even national packers in this area depend heavily on Federal grades. In 1960 more than four-fifths of total commercial lamb slaughter was federally graded. The important independent packers have established policies of federally grading large

Table 7.--Entry and exit of federally inspected sheep and lamb slaughters, 1950-60 1/

Size of plant	New plants: No previous slaughter	New plants: Previously slaughtered other animals	New plants: Total plants	Plants that --: Stopped all slaughter	Plants that --: Continue to slaughter other animals	Plants that --: Total plants discontinuing sheep and lamb slaughter
	Number	Number	Number	Number	Number	Number
Large plants 2/	2	3	5	6	3	9
Small plants 3/	14	5	19	28	36	64
Total...	16	8	24	34	39	73

1/ Plants that slaughtered at least 1,000 sheep and lambs per year.
2/ Slaughtered more than 100,000 sheep and lambs per year.
3/ Slaughtered between 1,000 and 100,000 sheep and lambs per year.

proportions of their slaughter to meet retail demand and counteract the brand names of the national packers. Moreover, even firms that sell most of their product locally believe that Federal grades give them the alternative of selling outside the West Coast, and that this improves their bargaining position relative to both national packers and retail chains.

The national packers need to use Federal grades to compete in the West Coast market, even though they normally prefer to compete using packer brands. In 1960 packer brands appeared on about one-tenth of all lamb slaughtered in the Pacific region and on only about one-fifth of the lamb sold there by national packers.

In the eastern market the national packers account for more than two-thirds of the lamb sold. They appear to be consolidating their slaughter in larger plants but losing a small proportion of their market share to independents. Most of the large and rapidly growing independents in the eastern market are in the Northeast where they ship in most of their lambs and kosher kill for the big city markets of New York, Philadelphia, and Boston.

The national packers in the Midwest have policies of private branding and federally grade only enough lamb to meet specific orders. The independents in the Northeast kosher slaughter and sell their lamb unrolled. Of packers selling lamb on the hugh Northeastern market, only the small packers in the Mountain and East North Central areas and the few large independent packers in the Midwest rely heavily on Federal grading.

The Retail Food Market

In the preceding sections differences in the importance of quality identification practices in two markets have been associated with differences in the structure of wholesale market. The wholesale market reflects to a large extent the requirements of the retail market which depend, in turn, upon population growth patterns, changes in technology of food production and marketing, and the customs, tastes, and incomes of consumers.

Consumption and Income

Before World War II lamb and mutton consumption was around 7 pounds per capita (fig. 1). Since then it has fallen to about 4-1/2 pounds, lower than any of the other red meats, turkey, or fish.

Historically, certain groups of people have eaten most of the lamb. Jewish people and people with backgrounds in Greece, Armenia, and other Mediterranean countries buy lamb more frequently than others. Also, people who eat lamb regularly tend to have relatively high incomes. In a cross-section survey in 1955 lamb and mutton consumption per capita was found to be more than 4 times as great for people earning $10,000 or more compared with those earning less than $2,000 (table 8). People who eat the most lamb were found to live in urban areas. The two highly urban States of New York and California accounted for about 45 percent of the total lamb consumption in 1954 (fig. 2). National origin, incomes, and geographic location tend to be associated so the importance of each for lamb consumption is not known.

Except in these few important lamb consuming areas, lamb is of minor importance to the retail firms merchandising it. Lamb comprised only 6 percent of the red meat sales for the average store in the survey. As a result, only a small amount of shelf space and small managerial attention is given to lamb in either procurement or merchandising. Many retailers reported carrying lamb only to complete the line of fresh meat and to satisfy a few customers requesting it.

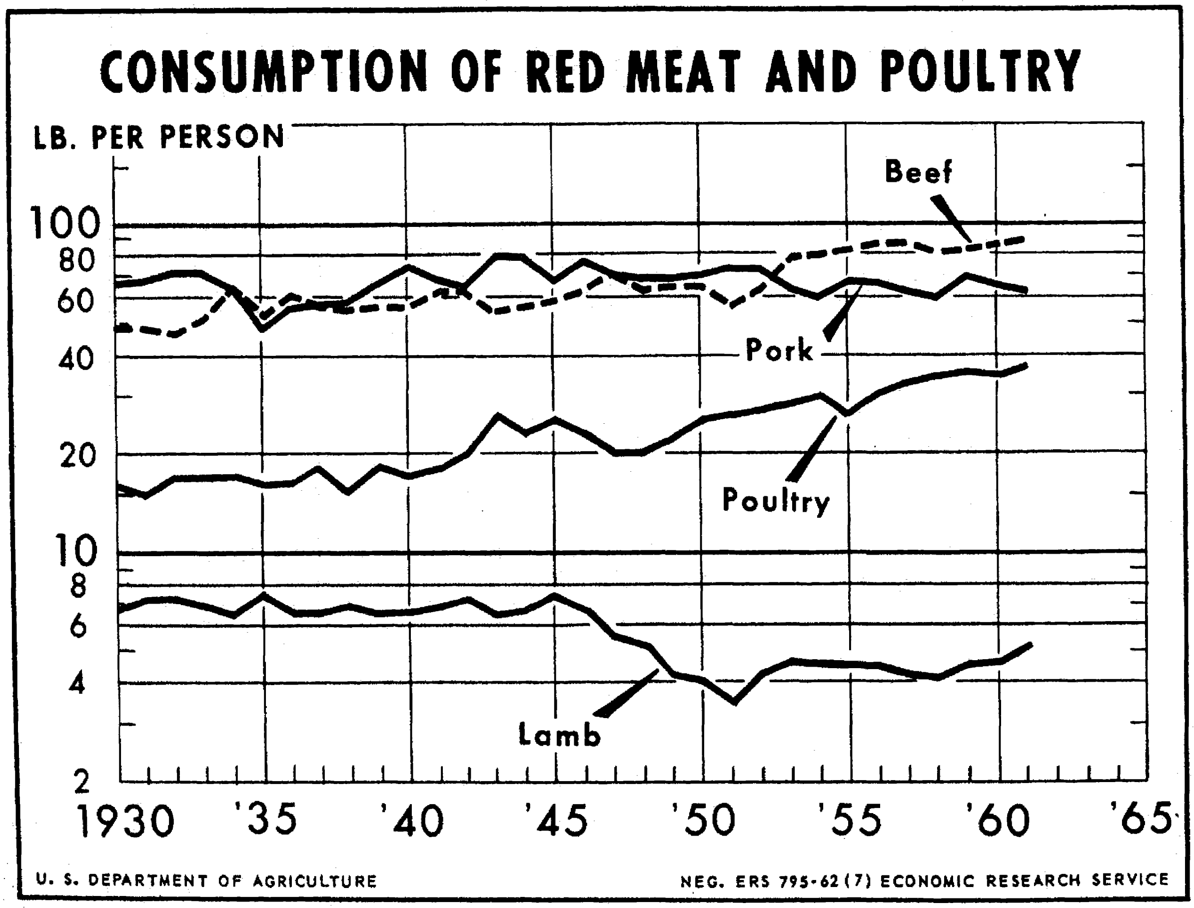

Figure 1

Table 8.--Meat consumption per capita in one week by income groups, United States, 1955 1/

Income group	All meat	Beef	Veal	Lamb and mutton	Pork
	Pounds	Pounds	Pounds	Pounds	Pounds
Under $2,000	2.76	0.95	0.06	0.06	1.23
$2,000 to $2,999	2.92	1.08	.08	.10	1.14
$3,000 to $3,999	2.96	1.19	.09	.10	1.10
$4,000 to $4,999	3.12	1.34	.12	.09	1.08
$5,000 to $5,999	3.33	1.47	.11	.14	1.13
$6,000 to $7,999	3.39	1.48	.11	.12	1.19
$8,000 to $9,999	3.20	1.50	.11	.14	1.00
$10,000 and over	3.59	1.67	.14	.27	1.12
	Percent	Percent	Percent	Percent	Percent
Percentage change from lowest income group to highest	+30	+76	+133	+350	-9

1/ Urban households, excludes 1-person households.

Source: Breimyer and Kause (3).

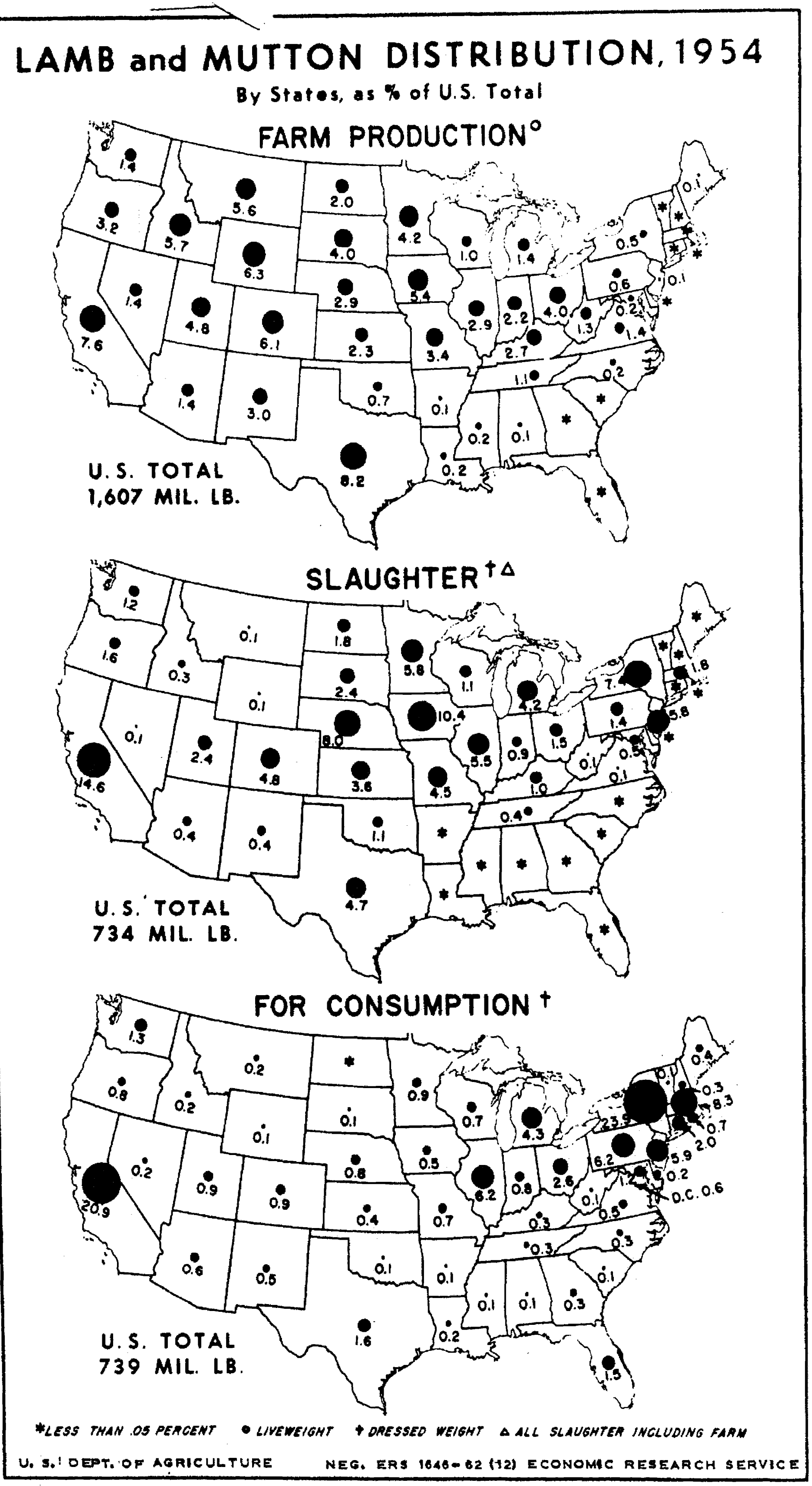
LAMB and MUTTON DISTRIBUTION, 1954
By States, as % of U.S. Total
FARM PRODUCTION°
U.S. TOTAL
1,607 MIL. LB.
SLAUGHTER†△
U.S. TOTAL
734 MIL. LB.
FOR CONSUMPTION†
U.S. TOTAL
739 MIL. LB.
*LESS THAN .05 PERCENT
° LIVEWEIGHT
† DRESSED WEIGHT
△ ALL SLAUGHTER INCLUDING FARM
U. S. DEPT. OF AGRICULTURE
NEG. ERS 1646-62 (12) ECONOMIC RESEARCH SERVICE

Figure 2

To study the structure of the retail market for lamb in this context, the retail food market structure in the Northeast and Pacific areas is examined and is related to lamb marketing practices and policies.

The Retail Market Structure

By 1958, more than 10,000 grocery stores exceeded the $1 million mark in annual sales (table 9). This group makes up only 4 percent of all grocery stores but accounted for 46 percent of all grocery sales. Corporations owned 91 percent of these large stores. All the stores operated by chains (11 stores or more) averaged more than $1 million per store (table 10).

Of the 242,796 grocery stores in the United States that operated the entire year in 1958, 72 percent had sales below $100,000. They made up only 15 percent of total grocery sales. Ninety percent were owned by individual proprietorships. Sales of grocery stores that operated as single units averaged less than $100,000.

The structural changes in food retailing have been well documented. (5, 6, 9). Residents of nearly every town now depend on supermarkets for thousands of items, both food and nonfood. One-stop shopping has been encouraged by the development of shopping centers in suburban areas. Low prices and high volumes continue to be stated objectives of the industry. But, at the same time, trading stamps, air conditioning, and other accountrements are widely used in competing for the customer's favor.

This dynamic industry has followed various patterns of growth in different areas of the United States. The contrast is especially noticeable between the Northeast and Pacific areas. California, having more than doubled its population in the last two decades, is one of the most rapidly growing areas of the country (table 11). New York State has grown only modestly (at a lower rate than the United States). New York City, however, has a higher population density than the cities in California. As a result, the retail food organization has developed differently. Rapid population growth in California has demanded compensating expansion of retail food facilities. New developments in terms of shopping centers and adoption of new technology have been facilitated by rapid growth.

The number of grocery stores on both coasts and the United States has declined by about one-third in a 19-year period (table 11). Total sales expanded greatly, even after allowing for inflation. Sales rose most rapidly in California with New York falling behind the United States, as would be expected from the population data. As store numbers declined, average store size increased substantially. Specialized meat markets have declined in numbers about as rapidly as total grocery stores. The decline has been relatively greater in California than in New York, where important ethnic and nationality groups have continued to demand specialty meats, such as kosher lamb.

Both New York and California have proportionally more large grocery stores in terms of sales per store, than the United States as a whole. In 1958, 9 percent of the grocery stores in California had sales of over $1 million compared with 5 percent in New York and 4 percent in the United States. These large stores accounted for well over half of total sales in California. Both California and New York had less than their proportionate share of the total number of small grocery stores with sales less than $50,000.

Table 9.--Grocery stores: Number and total sales, by size of sales class, California, New York, and United States, 1958 1/

Sales size of store (1,000 dollars)	Number of grocery stores: United States	Number of grocery stores: California	Number of grocery stores: New York	Sales of grocery stores: United States	Sales of grocery stores: California	Sales of grocery stores: New York
	Number	Number	Number	Million dollars	Million dollars	Million dollars
1,000 and over	10,332	1,133	1,100	18,757	2,347	1,949
500 to 999	9,092	920	830	6,445	652	597
300 to 499	8,369	888	724	3,227	344	281
100 to 299	39,422	3,030	3,580	6,463	512	575
50 to 99	45,546	2,290	5,007	3,199	164	350
Less than 50	130,035	4,406	9,678	3,091	119	271
Total (operated entire year)	242,796	12,667	20,919	41,182	4,138	4,023
	Percentage distribution					
	Percent	Percent	Percent	Percent	Percent	Percent
1,000 and over	4.2	8.9	5.3	45.5	56.7	48.4
500 to 999	3.7	7.3	4.0	15.7	15.7	14.9
300 to 499	3.4	7.0	3.5	7.8	8.3	7.0
100 to 299	16.2	23.9	17.1	15.7	12.4	14.3
50 to 99	18.9	18.1	23.9	7.8	4.0	8.7
Less than 50	53.6	34.8	46.2	7.5	2.9	6.7
Total (operated entire year)	100.0	100.0	100.0	100.0	100.0	100.0

1/ Includes delicatessens.

Source: 1958 Census of Business (11).

Table 10.--Grocery stores: Number, total sales, and sales per store, by size of firm, California, New York, and United States, 1958

Size by number of stores per firm	Grocery stores			Sales of grocery stores			Sales per store		
	United States	California	New York	United States	California	New York	United States	California	New York
	Number	Number	Number	Mil. dol.	Mil. dol.	Mil. dol.	Thous. dol.	Thous. dol.	Thous. dol.
1............	234,901	11,853	19,816	20,557	1,920	1,750	88	162	88
2 to 3........	4,960	525	265	2,084	363	96	420	691	363
4 to 10.......	2,312	278	102	1,843	403	53	797	1,450	517
11 to 25......	1,548			1,455			940		
26 to 50......	1,650	1,195	2,351	1,903	1,782	2,364	1,153	1,491	1,006
51 to 100.....	1,566			1,750			1,118		
101 and over.	12,859			14,105			1,097		
Total......	259,796	13,851	22,534	43,697	4,468	4,263	168	323	189
	Percentage distribution								
	Percent	Percent	Percent	Percent	Percent	Percent			
1............	90.4	85.6	87.9	47.0	43.0	41.0			
2 to 3........	1.9	3.8	1.2	4.8	8.1	2.3			
4 to 10.......	.9	2.0	.5	4.2	9.0	1.2			
11 to 25......	.6			3.3					
26 to 50......	.6	8.6	10.4	4.4	39.9	55.5			
51 to 100.....	.6			4.0					
101 and over.	5.0			32.3					
Total......	100.0	100.0	100.0	100.0	100.0	100.0			

Source: 1958 Census of Business (11).

Table 11.--Grocery firms and meat markets: Total population and number and sales of firms, California, New York, and United States, 1939, 1948, and 1958

Item	Unit	1939	1948	1958	Percentage change 1939 to 1958
Population: 1/					
United States	Thou.	130,880	146,093	173,260	+32
California	Thou.	6,785	10,467	14,337	+111
New York	Thou.	13,523	14,391	16,229	+20
Grocery stores:					
Number of stores:					
United States	No.	397,246	386,151	259,796	-35
California	No.	20,499	17,512	13,852	-32
New York	No.	38,200	31,789	22,535	-41
Total sales:					
United States	Mil. dol.	7,854	25,079	43,696	+456
California	Mil. dol.	589	2,247	4,469	+659
New York	Mil. dol.	910	2,516	4,264	+369
Meat markets:					
Number of stores:					
United States	No.	35,630	24,242	23,844	-33
California	No.	3,359	1,690	2,090	-38
New York	No.	9,760	8,275	6,782	-31
Total sales:					
United States	Mil. dol.	700	1,642	2,327	+232
California	Mil. dol.	77	138	221	+187
New York	Mil. dol.	214	552	617	+188

1/ Total population residing in continental United States.

Source: U. S. Bureau of the Census.

Grocery stores in California are twice the size of those in New York or the whole United States (based on average sales per store). Stores in each of the size of firm groups are larger in California than the United States, while those in New York are smaller.

Retail grocery stores purchasing through retailer-owned cooperative wholesalers and members of voluntary wholesaler-sponsored groups are a rapidly growing segment of the grocery business. Their effect on the wholesale meat market to date has been small but the potential is large. Cooperative and voluntary groups have become a much larger part of the market in California than in the rest of the United States, while their growth in New York has lagged. More than two-fifths of total food store sales in California in 1958 were made by stores that were members of cooperative buying groups. This share compares with 15 percent in the United States and only 3 percent in New York. 12/ More than half of the chains in California having 11 or more stores are members of cooperatives (5, p. 30).

12/ Computed from Staff Report to the U. S. Federal Trade Commission (15, pp. 186-187).

Members of voluntary groups sold about 9 percent of total United States retail food sales in 1958. This compares with 10 percent for the Pacific Region and only 4 percent for the Middle Atlantic Region (13, pp. 210-213). These proportions overstate the importance of group buying since members of voluntary groups purchase about half their total requirements from their wholesale sponsors while the members of the cooperative groups purchase only a third of their requirements through their respective groups. Nevertheless, group buying of grocery store supplies is growing at a faster rate than total sales and is a dominant feature of grocery retailing on the West Coast.

The impact of group buying has not been as great for meat as for grocery products. Over nine-tenths of the buying groups purchased dry groceries for their members in 1958 in the United States, but only 19 percent of the cooperative groups and 24 percent of the voluntary groups purchased meat (13, pp. 167, 120). Even though these percentages are small, they represent substantial gains over the previous 10 years when only 12 percent of the cooperative groups and 8 percent of the voluntary groups handled meat for members.

Continuing these trends in the future would constitute a major restructuring of the wholesale meat market by decreasing the number of retail buyers. The trend indicates that through group buying small firms are increasingly able to purchase in volume on more even terms with their large competitors.

The Retail Lamb Market

The 154 retail firms contacted sold about 271 million pounds of lamb in 1960, more than half the total lamb volume at retail (table 12). 13/ Most of this lamb was sold by the 10 large firms. The single-store firms were not well represented in the survey. New York weighs the most heavily among cities.

Lamb volume per store averaged over 40,000 pounds in the 6 cities in 1960 (table 12). Miami was high because of the inclusion of one chain having exceptionally large stores. The large volumes for New York and Los Angeles indicate high lamb consumption in these areas. Omaha's low average per store was expected. In all

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13/ Nearly all firms surveyed reported carrying lamb in at least some of their stores each day of the week throughout the year. Most of them carried lamb as a regular item in all their stores; some carried only specified cuts. Four cities were selected on the basis of high lamb consumption so the sample was not representative in this respect. All of the large chains reported carrying lamb in most of their stores, but some said they did not carry it in some midwest and southern country areas where lamb consumption is known to be low. Some small chains and single-store firms that sell no lamb were contacted, but no schedule was taken. Omaha was the only city where lamb was not readily available in nearly all the large supermarkets. In California all retail grocery firms except 5 reported selling all cuts of lamb; the 5 exceptions offered only certain cuts. Only 22 of 37 retailers contacted in New York sold all cuts. The remaining retailers varied in the particular cuts that they handled. In the other 3 cities about one-third of the retailers surveyed sold only specified cuts. Nine of the 10 largest chains sold all cuts of lamb in most of their stores. The tenth sold only the major cuts. The small chains and single-store firms tend to handle only specified cuts that move well. Many retailers indicated difficulty in moving breasts and necks at any price. Many of the firms that sold all cuts said they specialized in certain cuts and extra cuts were purchased in addition to the carcasses they broke.

Table 12.--Retailers sampled: Number of firms and stores and importance of lamb handled, by size of firm, selected cities, 1960

Stores and firms by size of firm	San Francisco	Los Angeles	New York	Boston	Miami	Omaha	Total 6 cities 1/	10 largest chains	Total sample 1/
Number of firms and stores sampled 2/	Number	Number	Number	Number	Number	Number	Number	Number	Number
Firms:									
Single-store firms	12	7	16	11	6	4	56	0	56
Small chains	10	17	11	6	6	4	54	0	54
Medium and large chains	8	14	16	6	3	2	41	10	44
Total firms	30	38	43	23	15	10	151	10	154
Stores owned by firms:									
Single-store firms	12	7	16	11	66	4	56	0	56
Small chains	26	66	52	29	15	19	207	0	207
Medium and large chains	404	632	1,919	438	186	43	3,622	11,275	12,923
Total stores	442	705	1,987	478	207	66	3,885	11,275	13,186
Total lamb volume handled 2/	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
Single-store firms	0.4	0.1	0.3	0.3	0.1	0.1	1.3	0	1.3
Small chains	1.4	3.1	2.6	2.7	1.3	.2	11.3	0	11.3
Medium and large chains	12.3	27.3	80.3	15.7	8.5	.3	144.4	200.0	258.0
Total lamb handled	14.1	30.5	83.2	18.7	9.9	.6	157.0	200.0	270.6
Average lamb volume per retail store 2/	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds
Single-store firms	28	13	21	26	23	30	23	0	23
Small chains	54	47	50	96	83	10	54	0	54
Medium and large chains	31	43	42	36	46	6	40	18	20
Average volume per store	32	43	42	39	48	9	40	18	21
Lamb sold as percentage of total red meat sold 2/ 3/	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Single-store firms	19.4	10.9	8.2	18.6	6.9	1.9	7.9	0	7.9
Small chains	10.0	9.0	13.9	9.9	3.2	2.1	7.9	0	7.9
Medium and large chains	10.8	7.1	13.0	7.5	9.1	1.5	10.1	5.1	5.7
Average lamb sold	10.8	7.3	13.0	7.9	7.4	1.8	9.9	5.1	5.8

1/ Some totals may not add because of duplications among cities; data for 10 largest are included in each city in which located.
2/ Large and medium chains, 11 stores or more; small chains, 2 to 10 stores.
3/ Includes beef, veal, pork, and lamb.

cities, the small chains sold more lamb per store than did the larger chains. The single-store firms, however, sold less lamb per store than either of the other size groups.

Lamb volume amounted to about 10 percent of total red meat (beef, veal, pork, and lamb) volume in the 6 cities surveyed (table 12). This percentage is substantially higher than would be expected for the United States as a whole. In New York lamb volume was 13 percent of total red meat compared with less than 2 percent in Omaha and 5 percent by the 10 largest chains in stores outside of the 6 cities. The large average volume of lamb sales of the small chains shown in table 12 is owed, in most cities, to their large volume of total red meat sales rather than to any emphasis on lamb sales in comparison to other meats.

Practically all of the lamb retailed in both Los Angeles and San Francisco was federally graded, but about half of the lamb bought by retailers in New York was unrolled. The rest was divided between packer brands and Federal grades. The large retail firms heavily influenced the totals. For all retailers except the 10 largest chains in New York, more than two-fifths of the lamb they purchased was federally graded and the rest packer branded; in all 6 cities more than three-fifths was federally graded. The difference was made up in the share of the unrolled. Packer branding was most important in Boston where it amounted to two-thirds of the total volume.

Market Structure, Position, and Grading Policies

The extent to which firms in the wholesale market use Federal grading for lamb depends on the grading policy of the firm. Decisions leading to grading policies are influenced by firm organization, objectives, and position. Assuming that profit is a major objective common to most firms in the industry, firms which are similarly organized selling in markets with similar structures are hypothesized to have different grading policies depending on their market position.

In preceding sections a close association between particular market structures and grading policies was described. Of the several elements of market structure observed, only a small number were different in the two markets. The various roles these elements of market structure play in determining grading policies of individual firms are examined below.

Area Differences in Merchandising

Actions of competitors appear to exert a strong influence on the choice of lamb quality identification used. Retailers in California often said they felt compelled to handle Federal grades in order to compete with neighboring stores. Undoubtedly, the policies of most of the leading chains in California of buying nearly all their lamb federally graded has a great deal of influence on remaining stores. On the East Coast many of the leading chains have policies of merchandising either private or packer brands. The smaller retail firms there are divided in their policies. Because of this division, less pressure exists to conform to any particular policy.

Several retailers in California indicated that if the leading chain there altered its grading policy, they would do likewise. Recently this chain did alter its policy but continues purchasing on the basis of Federal grades, plus some additional specifications. However, the chain has started stamping a private brand name on all of its fresh meat products including lamb and is now advertising and merchandising both

U. S. Choice and its own brand name. Apparently, the addition is an attempt to differentiate its products from competitors, most of whom also sell U. S. Choice. This firm appears to be putting increased emphasis on its own brand name. Some advertising no longer carries the Choice label. If the Federal grade designation is gradually dropped, the decrease in use of Choice as a merchandising tool on the West Coast may significantly affect the use of Federal grading in that area.

One national chain, operating a small number of stores in California, merchandises Choice locally even though its national policy is to promote its own private label. A large regional chain in California recently declared bankruptcy and is currently being operated by a regional chain with a private label grading policy. The only regional chain in California that does its own meatpacking and promotes a private label was recently merged with a national chain having the same policy. Thus, strong competitive pressures to move away from a policy of Federal grading may be building up on the West Coast. Such a shift would substantially affect the present methods of merchandising in the California market. The meat manager of one of the other major chains operating in California indicated a personal preference to merchandise its own brand but at present is still selling only Choice.

Another reason for area differences in lamb quality identification may be the differences found in beef grading. More than half of the retailers surveyed said they have the same grading policy for lamb as they have for beef. About the same proportion of firms following the different policies reported a similarity in beef and lamb grading policies. Uniform policies raise the question of whether a given policy was established for beef and applied to lamb for consistency or whether it was determined on the merits of grading lamb alone. The possibility of the former exists because of the known importance that beef has in the pricing and demand decisions regarding lamb. Since lamb is of minor importance to many retailers, whatever policy is the most convenient will be followed unless there are real advantages in an alternative policy.

Some retailers said they buy both beef and lamb from the same packer because of the convenience of ordering and delivery. However, many retailers appraised the benefits of various grading policies independently and a number of these also applied the same grading policy to both beef and lamb. Others said they established both policies because of a uniform decision of the firm to advertise and merchandise a given brand or Federal grade. In this way a reputation was being built around the policy selected.

Many firms had somewhat different policies on different meats. Some firms, mostly in the East, handle federally graded beef but packer branded or unrolled lamb. They indicated it wasn't worth the trouble of locating and separately ordering it. In California the opposite more often was found. Some retailers reported a dislike for current Federal grade standards on beef, and therefore did not wish to rely on Federal grades in procurement. But in the case of lamb, its small importance did not justify such high procurement costs so they relied on the Federal grades to purchase the type of lamb they wanted. Another reason sometimes given was the value in insuring against getting an occasional mutton carcass or cut mixed in with the lamb order. Others said that lamb quality is more critical than is beef quality. They do not feel as well qualified to distinguish it and they prefer to rely on the Federal grader's judgment rather than that of the seller.

The variations in the lamb marketing structure among regions offer the most convincing explanation for different lamb grading policies. The West Coast is characterized by a rapidly expanding population and food retailing system. Growing local and regional chains in California have relied on Federal grade standards as aids to procurement; many have established reputations by merchandising U. S. Choice. Further, the large number of independent meatpackers in the area rely on Federal grades in competing with national packers. As a result the use of Federal grades in San Francisco and Los Angeles is nearly universal. However, changing policies of major firms in the area may portend less reliance on Federal grades in the future than is currently true.

On the East Coast established retail firms primarily handle packer brands or put private retail labels on lamb purchased unrolled. Here, expansion of the market has been slower than on the West Coast. National packers account for most of the lamb sold at wholesale. The largest retailer in the United States is in the East and has a private label policy.

Eastern retailers prefer to buy federally graded lamb when they can at prices that are competitive with packer branded and unrolled lamb. However, many of them do not believe that the benefits associated with restricting their supply to U. S. graded lamb offset the costs. As a result there is little competitive pressure in this market for retail firms to merchandise Federal grades. Federal grades have been used to some extent in this market but have not dominated the market as they have in the West.

Quality Identification at Wholesale

The pattern of use of techniques of quality identification in two areas have been associated with differences in market structure. In order to develop evidence for a cause and effect relationship from this association, it is necessary to demonstrate that area differences in quality identification disappear when allowances are made for differences in market structure.

National packers (who have policies of federally grading only what customers require them to grade) put their own label on 62 percent of their lamb slaughter in the West North Central region but only 18 percent in the Pacific region. They sell 68 percent of their lamb slaughter federally graded in the Pacific area but only 18 percent in the West North Central. These differences among the same packers, operating under the same policies, are closely associated with buyers' policies.

National packers on the West Coast sold a larger proportion of their lamb to chains than they did in the Midwest (61 percent compared with 26 percent). Since national packers in the Pacific region supply only 35 percent of the lamb compared with 100 percent in the West North Central region they are not able successfully to resist the demands of chainstores for federally graded lamb. In the Pacific area, chains buy 63 percent of the national packers' federally graded lamb but only 12 percent of their packer-branded lamb, and 8 percent of their unrolled lamb. In the West North Central region chains get only 32 percent of the national packers' federally graded lamb, 20 percent of their packer branded lamb, and 32 percent of their unrolled lamb.

Thus, the market position of buyer and seller determine not only their quality identification policies, but the extent to which buyers and sellers are able to utilize preferred types of quality identification. Small packers federally grade a larger proportion of their lamb than do larger independent packers who, in turn, federally grade a larger proportion of their lamb than do national packers.

Hotels, restaurants, and institutions which prefer federally graded lamb are important customers for wholesalers. As a result, a large proportion of their lamb is federally graded. One-store retailers, who tend to take what they are offered, buy a smaller proportion of their lamb federally graded than do other retailers.

As was expected, the sales of lamb to each of the packers' outlets contained more or less federally graded lamb depending on both the policy of the seller and the buyer. For all packers, more than two-fifths of sales to chains was federally graded in contrast to slightly more than one-fourth of the sales to small retailers. National packers federally graded less than two-fifths of their sales to chains, large independents nearly half, and small packers nearly three-fourths. Of their sales to independent retailers, national packers sold nearly two-thirds under their own brands; other packers sold more than half unrolled, and only insignificant quantities under their own brands.

Given the policies of the national packers toward Federal grading, the varying proportions of the lamb they sold federally graded to different types of outlets are particularly significant. Of their sales to chains, 39 percent was federally graded in contrast to 20 percent of their sales to independent retailers. At the same time, 40 percent of their sales to chains was packer branded in contrast to 65 percent of their sales to independent retailers. This pattern was expected. It bears out the hypothesis that the important customers ask for and get the quality identification they want. Conversely, small independent retailers tend to take the lamb they are offered by the people from whom they buy beef and pork. In their purchases from national packers, this is usually packer-branded lamb. Other large packers follow the same pattern of attempting to sell unrolled and packer-branded lamb to independent retailers.

THE 1960 CHANGE IN FEDERAL GRADE STANDARDS

A number of types of lambs are marketed for slaughter in the United States. Traditionally, they have all been evaluated according to a single set of standards. But western lambs, bred for their ability to use sparse ranges or mountain pastures and for their wool, are different from native lambs, bred primarily for their meat. Criteria in Federal grade standards differ for young versus mature lamb but not for western and native lamb.

Because Federal standards for lamb were designed on the basis of the meat-type characteristics more prominent in native lambs, a smaller proportion of western than native lambs met conformation standards for high Federal grades under previous standards. Many wool-type lambs were required to compensate for lack of conformation by superior quality meat.

This situation led to a high proportion of western lambs being grain-fed, including many that had no logical potential for making Choice. Even after prolonged feeding many of these lambs did not make the grade. Instead, objectionable deposits of external fat were added, and many lambs were discounted for being overweight.

One of the objectives of the 1960 change was to enable Federal grades for lamb to accommodate both western and native lambs. Changing the conformation standards to include differences between these types of lamb, however, made them less descriptive of conformation variation within these types. 14/

Description of the Change

The Federal grade of a lamb carcass is determined from a composite evaluation of two separate factors: quality and conformation. The quality evaluation is based on the age of the animal; the development of fat deposits on the interior of the carcass; and the firmness of both fat and lean. The evaluation of conformation considers the development of the muscular and skeletal systems and the quantity and distribution of external finish.

Quality and conformation are substitutable in some cases. A carcass that exceeds the Choice requirements for quality but falls a little short on conformation may still be graded Choice. Quality can compensate for conformation up to one full grade. Conformation can compensate for as much as one-third of a quality grade, except for the Prime grade. For Prime, quality can compensate for deficient conformation, but the carcass must be Prime quality.

The Federal grade standards for lamb were changed in March 1960. Since then it has been easier for carcasses to grade Prime and Choice, particularly for mature carcasses. Both conformation and quality requirements for Prime and Choice were reduced--the conformation requirements by about half a grade, the quality requirements by about half a grade for young lamb, about two-thirds a grade for more mature Choice lamb, and about one full grade for mature Prime lamb (table 13). The minimum requirements for the Good and Utility grades were not changed. A minimum degree of external fat covering was prescribed for Prime and Choice and the emphasis on internal fat was reduced. The emphasis on firmness of fat and lean was increased.

Because the upper limits of the Choice grade were lowered by slightly more than one-half grade and the lower limits by slightly less than one-half grade, variation within the Choice grade may have been narrowed. 15/ Prime is probably a wider grade now and Good is unquestionably narrower.

14/ When there are variations in ideal conformation and quality (as occurs between native and western lambs) the problem is compounded. If these variations are important, the solution is beyond the capabilities of a single set of grades. The alternative is to grade in each important dimension. This would lead to separate grades for western and native lambs or to separate quality and conformation grades. The choice would depend on which dimension had the most important variation.

This study was not designed to determine the importance of the variation in current grades. Conclusions as to the need and cost of various dual grading systems cannot be made here. The uses made of Federal grading in the wholesale market, however, indicate that this variation probably is significant.

15/ This would be true, however, only if the grades were the same width before the change (or the Good grade narrower than Choice.) If the previous Good grade had been wider than the Choice grade, the less than one-half grade added to Choice would have been greater than the more than one-half grade given up by Choice to Prime.

Table 13.--Changes in Federal grade standards for lamb, effective March 1960

Quality and conformation requirement	Amount requirements were reduced for carcass to grade --				
	Prime	Choice	Good	Utility	Cull
Young lambs:					
Quality requirements.....	About 1/2 grade	About 1/2 grade	None	None	None
Conformation requirements	About 1/2 grade	About 1/2 grade	None	None	None
Mature lambs:					
Quality requirements.....	About 1 grade	About 2/3 grade	None	None	None
Conformation requirements	About 1/2 grade	About 1/2 grade	None	None	None

Source: Official United States Standards for Grades of Lamb (14, p.2).

Changes in Quality and Federal Grades

The changes described above sharply altered the distribution of lamb among Federal grades (table 14). The proportion of lamb slaughter that would qualify for U. S. Choice increased from about one-half in 1959 to more than two-thirds in 1960, according to estimates of packers. Of lambs slaughtered in 1960, only one-fifth would have graded U. S. Good or below compared to one-half in 1959.

For lamb that was federally graded and rolled the greatest changes were in the Prime and Good grades. Prime increased from about 1 percent in the 1959 marketing year (March through the following February) to 16 percent in 1960 and 12 percent in 1961 (fig. 3). Good dropped from 11 percent in 1959 to 3 percent in 1960 and 1961. Choice dropped from 87 percent in 1959 to 81 percent in 1960 and 82 percent in 1961. About 90 percent of the lamb graded in 1959 was either Prime or Choice. The sum of these grades increased to nearly 97 percent after the change.

The period between March 1960 and the survey was too short to expect the general quality level of lambs produced to have responded very greatly to changes in grading standards. To merchandise lamb of the same quality, retailers had to buy higher in the new grades than they did in the old. They were asked if they changed the quality of lamb they handled or moved up in the new grades.

Although three-fourths of the retailers (including most of those not pleased with the change) reported that they continued to merchandise the same level of quality, none switched to merchandising Prime in order to do so. Many reported buying higher in the grade to maintain quality and some maintained their old quality but handled U. S. Choice instead of U. S. Good. A number of this group continued to buy the same grade but did not notice any difference in quality. One-fourth said their lambs now carry less finish but many of them objected to calling this a lower quality.

Retailers' shifts in quality and equivalent grades are probably understated. Many retailers, particularly on the West Coast, were not able accurately to estimate

Table 14.--Lamb sales and purchases in the wholesale market: Distribution by Federal grade equivalent of total lamb handled, 1959 and 1960

Federal grade equivalent	Packers' sales		Wholesalers' sales		Retailers' purchases	
	1959	1960	1959	1960	1959	1960
	Percent	Percent	Percent	Percent	Percent	Percent
Prime.....	3	11	6	11	1	3
Choice....	52	68	80	84	93	95
Good......	41	19	14	5	6	2
Other.....	4	2	--	--	--	--
Total...	100	100	100	100	100	100

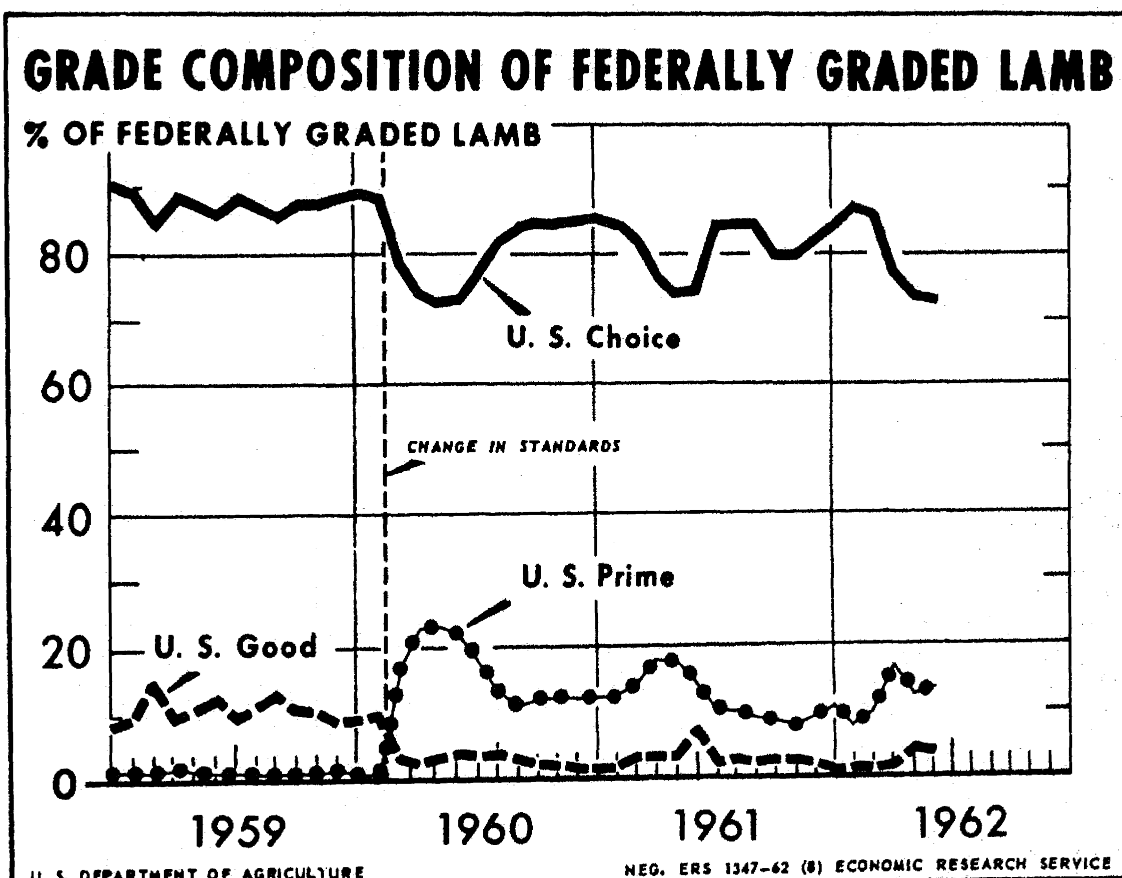

Figure 3

the percentage of Prime being handled after the change in standards. Often they reported "Prime and Choice" with no idea of the breakdown. At other times it was reported all Choice but further probing revealed that although Choice was specified from suppliers, the retailer allowed the supplier to mix in Prime at will. In these cases the price paid was the same, and the two grades usually were merchandised together at the same price, making separation of the two grades difficult. Retailers merchandising unrolled or packer-branded lamb, as was frequent on the East Coast, often had a poor concept of the change in standards. This lack of use made estimation of equivalent grades difficult.

Six-tenths of the wholesalers observed no difference in the quality of their lamb purchases in 1960 compared to 1959. Most of these wholesalers were on the East Coast. Only two of the New York wholesalers, for example, could observe any differences in quality. These Northeastern wholesalers were some of the largest in the Nation and generally relied less on Federal grades in procurement than wholesalers elsewhere. They sold more than 8 percent of total U. S. commercial sheep and lamb slaughter and were important packer outlets.

Most of the quality changes associated with the revised standards among wholesalers were observed along the West Coast. There, wholesalers tend to handle smaller volumes of lamb than on the East Coast and to purchase the full range of the Choice grade. In Los Angeles two wholesalers who formerly purchased in the bottom half of Choice now specify the top half under the new standards. Where purchasing policies had remained stationary, that is, wholesalers continued to take the full range of Choice, the concensus was that quality was "lower" but preferable since these lambs were leaner. Practically all of the wholesalers in San Francisco observed a lower level of quality in the Choice grade in 1960 compared to 1959.

The quality of lambs killed by most large packers closely reflects the quality of all lambs marketed in a given area. Because of plant volume requirements, large lamb slaughterers seldom can select very strictly on the basis of quality. Many small firms, however, that buy only a small part of the lambs offered in large markets are able to be selective of the lambs on which they bid. While large plants indicated that increased proportions of their slaughter would grade Prime and Choice, the small plants estimated that an even greater proportion of their slaughter would grade Prime, while the proportion that would grade Choice remained at the previous level.

Changes in Use of Federally Graded Lamb

Previous to the change in standards, around 35 percent of lamb slaughtered was federally graded. Total commercial lamb slaughter that was federally graded increased from 40 percent in the 1960 marketing year to 44 percent in 1961. During these 2 years, lamb slaughter increased 14 percent which in turn increased the amount federally graded by 51 percent.

Retailers

Less than 1 of 10 retailers reported handling a different proportion of lamb by types of grading before and after the change in standards. The net change between 1959 and 1960 in proportion of retail lamb purchases federally graded, packer graded, and unrolled was quite small, about one percentage point (table 15). The only size of firm classification to show any significant change was the small chain. These firms

Table 15.--Importance of U. S. grading and packer branding, by segments of the wholesale market, 1959 and 1960

Quality identification	Packers' sales		Wholesalers' sales		Retailers' purchases 1/	
	1959	1960	1959	1960	1959	1960
	Percent	Percent	Percent	Percent	Percent	Percent
U.S. graded and rolled	24	28	67	70	52	53
Packer branded..	42	39	5	7	20	20
Unrolled..	34	33	28	23	28	27
Total...	100	100	100	100	100	100

1/ Weighted average, proportions by size of firm groups weighted by sales distribution.

increased the proportion of their sales federally graded from 61 to 68 percent while decreasing the unrolled from 9 to 2 percent and holding packer branded constant.

Retailers in most parts of the country indicated little interest in Prime quality lamb. Many would not merchandise it; others would buy it only at a discount or at least at no premium over Choice. This appears to limit the demand for Prime to hotels and restaurants and a few specialty retailers. Thus, it was expected that the increased supply of Prime would exceed the demand at current prices. But lamb graded and rolled Prime proved to be a fairly acceptable substitute for Choice and after the change in standards was often sold with Choice lamb at no discount. The Prime name apparently offset the preferences for the lower weight and finish found in the Choice grade.

Retailers indicated an insufficient quantity of Choice lamb was available before the change in standards, especially toward the end of the marketing season. Orders for Choice often could not be filled within desired weight ranges, although packers indicated that only 60 percent of the lamb that qualified was federally graded and rolled U. S. Choice. Retailers believed that the change in standards tended to alleviate this problem and thus is expected to widen the demand for Federal grading and for lamb. Of the retailers interviewed, three (all in Los Angeles) have changed their merchandising policy as a result of the change in lamb standards. Each previously handled a mixture of high Good and low Choice but since the change have switched entirely to Choice. They feel they are selling the same quality but now are able to advertise the Federal grade.

Wholesalers

Four of the wholesalers interviewed, all in New York, changed the type of quality identification on the lamb they purchased. Of this four, three increased their use of federally graded lamb and the remaining firm entered into an exclusive arrangement with a packer and began to use packer-branded meat, including lamb.

On the West Coast, an image of high quality continued to be associated with federally graded lamb, principally U. S. Choice. In Miami wholesalers have no alternative but to sell U. S. graded meats.

Eastern wholesalers have a considerable amount of lamb graded in their own coolers. They have been able to buy unrolled lamb somewhat cheaper than federally graded lamb. Further, because lamb has a higher probability of making the grade after chilling during transit from the Midwest to the Northeast, wholesalers often purchased unrolled lamb. Since the change in standards, it is easier for wholesalers to locate lambs already graded Choice. Because the supply of U. S. graded lamb available from packers has increased, less lamb is federally graded in wholesalers' coolers.

Packers

The change in Federal standards prompted packers to federally grade a larger proportion of their lamb slaughter. Those interviewed graded 28 percent in 1960 compared to 24 percent in 1959. The proportion labeled with their own brands decreased from 42 to 39 percent and unrolled from 34 to 33 percent.

In general, similar patterns were observed for all groups of packers in all areas. National packers increased slightly the proportion of their lamb slaughter they federally graded, decreased the proportion they packer branded, but slightly increased the proportion they sold unrolled. Independents followed the same pattern except that they decreased the proportion sold unrolled.

In all areas where there was a change in the proportion of lamb federally graded after the 1960 change in standards, the change was upward. This was true for all packers, for each group of packers, for all regions, and for each group of packers in each region including the packers in the Northeast where Federal grading is least important.

Packers' customers for Prime and Choice responded by requesting slightly more Choice and accepting some Prime in lieu of Choice at the same price (table 16). Of the Prime sold by packers, retail chains accepted a significantly larger proportion in 1960 than in 1959. A much smaller share went to the wholesalers and HRI, the usual outlets for Prime. The change was less dramatic for Choice. About half of packers' sales of lamb rolled U. S. Choice went to retail chains both before and after the 1960 change in standards. Independent retailers bought a slightly larger proportion of these sales in 1960 than in 1959 while wholesalers and HRI bought a smaller proportion.

Changes in Grading Policy

Although retailers report that they are now selling more Choice than before the change in standards, none of the retailers contacted who were not merchandising federally graded lamb before the change had begun to do so at the time of the survey. They indicated that packers by their pricing policies were actively discouraging the sale of federally graded lamb relative to packer-branded lamb.

Most sales of lamb at wholesale are made by packers to retailers and most grading is done at the packing plant. Previous to the 1960 change in lamb standards, packers generally followed one of two policies. They either federally graded and

Table 16.--Distribution of U. S. Prime and Choice lamb, by outlet, 1959 and 1960

Packer outlet	Distribution of slaughter graded --			
	Prime		Choice	
	1959	1960	1959	1960
	Percent	Percent	Percent	Percent
Retail chains	32	40	50	50
Other retailers	8	14	10	25
Packer-branch houses	2	2	10	3
Wholesalers	26	15	23	16
Hotel, restaurant, and institutions	32	29	7	6
Total	100	100	100	100

rolled only enough to meet the specific requests of customers, or they federally graded and rolled all carcasses of Prime or Choice quality. Many times packers used the second policy because they usually could not get enough Prime and Choice carcasses to fill customer demand. The 1960 change in standards brought changes in policies of some packers. National packers appear to have intensified their efforts against the use of Federal grades, but even they continue to cater to those customers who insist on Federal grades. As a result, they continue to grade to fill specific orders, that is, grade until they get a specified number of Choice carcasses that meet weight specifications. West Coast independents who previously federally graded and rolled nearly everything continue to use grading extensively, while independents in the rest of the country have also increased their use of Federal grades, but to a smaller extent.

Wholesalers indicated that since a high proportion of their customers request federally graded lamb they have general policies of handling federally graded lamb whenever they can. When it is cheaper for them to buy lamb unrolled and have it federally graded, they follow this pattern. Otherwise they buy federally graded lamb from packers. In either case, their policy remains to supply federally graded lamb to most of their customers.

As was observed above, the grading policy of packers is largely explained by the organization of the firm and by the structure of the market in which they sell. The proportion of their slaughter that western packers federally graded changed from 67 percent in 1959 to 81 percent in 1960. Eastern packers had a low 3 percent graded in both years. National packers increased the proportion of their lamb federally graded from 19 to 21 percent, independent packers from 35 to 45 percent, and small independents from 55 to 58 percent.

Packers indicated that changes in the use of Federal grading since March 1960 have been caused by changes in the proportion of lambs meeting grade specifications under generally the same firm policies. No firm admitted buying lower quality lambs in 1960. This is plausible because lambs yielding high quality carcasses in terms of U. S. grades also have relatively higher dressing percentages, a very important factor to packers. Thus, packers continued to buy the best quality lambs they could get even though they graded Prime under the new standards and in most cases there was no premium for Prime. Packers indicated that lamb quality in 1960 was about the same as in previous years; that selection processes were similar; and that more lambs would grade Choice and Prime so more were graded. In fact, some packers who had policies against U. S. grading indicated that before the change in standards it was necessary for them to Federal grade everything that would grade U. S. Choice or better in order to fill their orders for U. S. graded lamb. Since the change in Federal standards, it is only necessary to grade part of their better lambs to fill their orders.

Industry's Opinion of the Change in Standards

Retailers

Of the retailers sampled, half approved of the 1960 revision in Federal lamb grading standards, a third had no opinion or were indifferent to the change, and the rest opposed the change. Those in favor of the revision said the new standards are more in line with consumer preferences. They thought the previous Choice was too fat for many customers, but continued to handle it because of established merchandising policy. Also, as mentioned, the change in standards eased supply problems. These opinions are in contradiction to those who maintain that the change in standards has widened the Choice grade to the extent that it is useless. Most of these firms said the change in standards was sufficient, and they would not favor further changes.

Retailers opposed to the revision feel the standards for U. S. Choice have been dropped too low. They feel that the current Federal grades mean less because too large a proportion grades Prime or Choice. Most of these retailers would prefer to return to the previous standards. Those that are indifferent or had no opinion on the revision included retailers that use their own specifications, personally select their own carcasses from packer coolers, purchase only packer branded or unrolled lamb, or depend on suppliers to select products for their needs. Several of these retailers (including a few that expressed an opinion on the subject) were unaware that a change in the standards had been made.

A lower percentage of one-store operators favored the revision than was true of chains. Three-fifths of the one-store firms were indifferent or unaware of the change. Many of them rely on suppliers to select their lamb. The medium and large chains (firms with 11 stores or more) were the most frequent objectors to the revision and had the smallest number of firms with no opinion. They were more inclined to object to the lowering of quality standards, and some voiced concern that consumers would object. These chains viewed U. S. Choice as akin to a proprietory label that they did not wish to see cheapened.

A larger proportion of the retailers on the West Coast than on the East Coast approved the revision. Three-fourths of the retailers interviewed in Boston and one-half in New York had no opinion on the change. They indicated little reliance on the Federal standards and were indifferent to any change made in them. Most of the West Coast retailers expressed an opinion on the revision since Federal grades are important in the lamb market there.

Wholesalers

Of the wholesalers contacted 80 percent approved of the revision. The remaining 20 percent expressed concern that the bottom of the Choice grade was no longer acceptable to their customers. Sixteen percent of the wholesalers approved of the revision but felt that further change was still necessary.

Wholesalers were especially pleased that the Prime grade was widened. They indicated that hotels, restaurants, and institutions seemed to be better satisfied with the new Prime. They commented that Prime now is not only more readily available, but leaner and more desirable.

All three of the wholesalers who disapproved of the revision were in New York. Those in the rest of the country were overwhelmingly in favor of the change. Their concensus was that the 1960 revision was helpful and further changes in standards are unnecessary.

Packers

The opinions registered by retailers were reinforced by information given by packers.

Packers indicated general satisfaction with the changed standards. They felt that lamb that was finished enough to satisfy specialty customers was properly taken from the Choice grade and made Prime. At the same time, the less wasty, but still desirable lamb was taken from the Good grade and made Choice. Some packers reasoned that in effect there are now only two Federal grades, Choice and other. Since about four-fifths of the lambs slaughtered would grade either Choice or Prime, the only effective separation is the removal of the bottom one-fifth, particularly since for most buyers Prime substitutes readily for Choice. Members of the industry expressed little concern with this situation. The relevant criterion, packers said, was whether or not the range of quality included in Choice is equally desirable to the lamb consumer. Packers maintained that this criterion is now met; that Prime lamb is obviously more highly finished and more desirable to some consumers, less desirable to others, but that the difference between Choice quality and Prime quality is meaningful. On the other hand, Good quality lamb is substantially less highly finished and generally less desirable. But most of the lamb slaughtered falls between Prime and Good. Many packers were eager to point out that current grade allocations were a considerable improvement over the previous standards. Packers showed little interest in a more even distribution of lamb among the grades. They are happy to see the largest proportion fall into Choice because it faces the volume demand.

Production Response

Although the change in the Federal lamb and mutton standards made in March 1960 affected only a part of the lambs marketed, significant changes in production practices are beginning to appear.

Historically, the monthly commercial slaughter of lambs in the United States has been fairly constant, with only a bulge in October and another in January (fig. 4). However, during the past decade the proportion of annual slaughter in the fall months has been declining while the proportion in the winter months has been increasing. This delay in slaughter showed up in rising average weights. It focused the grading problem under the old grade standards on the end of the marketing year. The pattern of slaughter since the change in Federal grade standards has shifted in the direction of earlier marketings. Slaughter in August 1960 and 1961 was one-fourth greater than in 1959 and exceeded the August slaughter of any year since 1946. Earlier marketings, noted particularly in July and August 1960, indicate that more lambs are now being slaughtered directly from ranges instead of going on feed. A larger proportion of the annual supply of lambs were slaughtered in each of the months August through November 1960-61 than during 1955-59 (fig. 4). Smaller proportions were slaughtered in December, January, and February 1960-61 compared with the same months in 1955-59. Preliminary data for 1962 show a continuation of these trends toward earlier marketing. If earlier marketings continue, significant market pressure will be relieved during the end of the marketing year when lambs previously were being fed to excessive weights in an attempt to reach the Choice grade.

Between 1956 and 1959, the annual average live weight of sheep and lambs slaughtered increased from 95 to 99 pounds. For 1960 the average held steady at 99 pounds but during 1961 the average declined to 98 pounds. Data for 1962 show an extention of this decline. The January-July average weight for 1962 was 2 pounds below 1961. The reversal of the uptrend in average weights is consistent with expectations of earlier marketings under the new grade standards.

The total number of sheep and lambs slaughtered increased by 14 percent between 1959 and 1961. But, in 1961 fewer stocker and feeder sheep and lambs were shipped into the Corn Belt States than in 1959. There were 17 percent fewer inspected stocker and feeder sheep and lambs shipped from public stockyards in 1961 than in 1959.

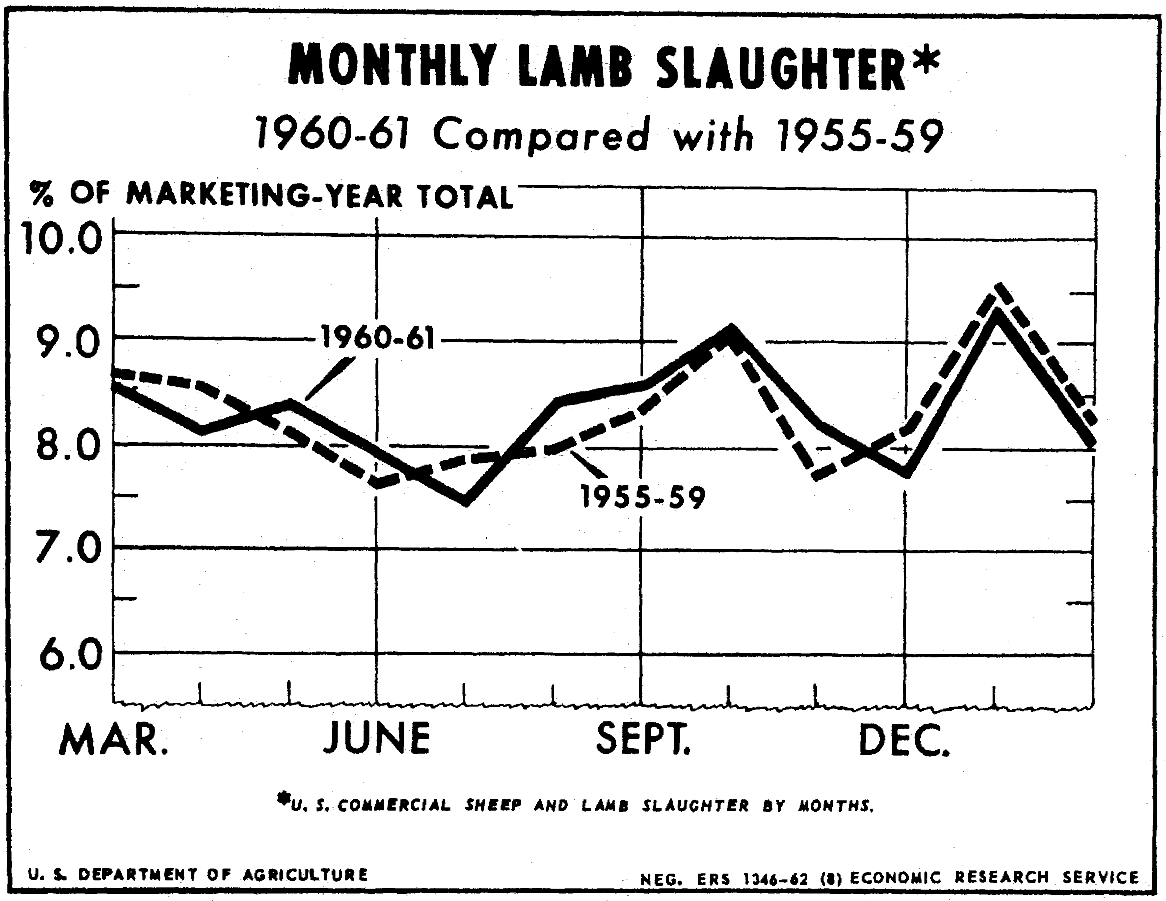

Figure 4

Total number of sheep and lambs on feed in the United States decreased 5 percent from Jan. 1, 1960, to Jan. 1, 1962. During July and August 1962, shipments of stockers and feeders into the eight Corn Belt States were 21 percent below 1961. Slaughter for these 2 months was within 1 percent of 1962. The rise in slaughter between 1959 and 1961 is partly attributed to flock liquidation. However, the decline in number of stockers and feeders indicates the trend toward slaughter direct from the range. This trend suggests a decline in demand for the services of lamb feeders has resulted from the change in lamb grade standards. 16/

In the months shortly after the change in grading standards, over 20 percent of the lamb federally graded was Prime and less than 75 percent Choice (fig. 3). The monthly peak in Prime in 1961 was lower, however, and in 1962, still lower. Prime was down to around 13 percent in 1961 while about 82 percent was Choice. Since the price difference between Prime and Choice has been quite small, feeders are not expected to continue the expense of feeding large numbers of lambs to the Prime grade. The proportion grading Prime in the future is expected to decline even further.

Evidence regarding changes in production practices is still inconclusive. The period has been too short. But these changes are the beginning of expected trends.

16/ Marketing lambs at lighter weights from the feedlot may be to the disadvantage of lamb feeders. The weight differential between stockers and feeders and fat lambs is relatively narrow so earlier marketing raises substantially the overhead costs on the remaining weight margin.

EFFECTS OF FEDERAL GRADES FOR LAMB

The use of Federal grades in lamb marketing has two major effects--price effects and effects on competition. The immediate price effect is the net result of the cost of the service compared with resulting benefits. Effects on competition are the sum of the effects on positions, products, and policies of both existing and potential firms in a market.

Effects of Federal Grades on Prices

Since use is voluntary, Federal grades are used only to the extent that the trade thinks is profitable. The use of Federal grading is not free; it is requested and paid for by the user. Aside from the direct costs involved, there are the costs of time and cooler facilities used when moving carcasses through an additional process. The benefits from grading appear in terms of product acceptability, quality communication, and a reduction in advertising, promotional and other costs of selling. Only when these benefits exceed costs do packers (and others) use Federal grades.

Price effects of Federal grading can take many forms and accrue to different parts of the marketing channel. When packers' costs of selling are reduced, wholesale asking prices can be lowered, if competition insists, or they can offer more for live lambs. If purchasing costs of retailers are reduced (and final demand increased), prices offered can be raised or retail prices lowered, again, if competition makes it necessary.

The wholesale market is tied only loosely to the live market, however. Packer margins are not mere subtractions from the wholesale price or additions to the farm price. Rather, margins represent the difference between two separate (although interdependent) markets. These markets must flex as supply and demand conditions change. While livestock sold in one market become the carcasses sold in the other, competition (or the lack of it) among packers, retailers, and farmers (and between these market levels) is the ultimate force determining the width of the margin. Wide margins (exceeding costs) stimulate additions to output and, if continued, lead to entry of new firms in a given geographic market. Narrow margins result in contractions and exits.

Farmers do not automatically reap benefits from decreases in packers costs (whether from increases in efficiency or bargaining power) any more than packers automatically benefit from increased efficiency of retailers. Only when packers are bidding for scarce supplies will competition among them bring this result. Packers can rationally be expected to widen their margins at the expense of either farmers or retailers, or both, whenever they are able.

The same logic applies to retailers. They pay the going wholesale price for lamb and sell it at prices consistent with competition. The retail margin is the resulting residual. 17/

Statistical price analyses were used to pinpoint the market forces primarily responsible for lamb prices. Federal grades were in use throughout the period under observation but more extensively since the change in grade standards than before. It was reasoned that if other forces failed to explain price changes as completely after as before the change in standards, the difference could be attributed to the different standards. Another motivation for the analyses was the fact that lamb prices declined rapidly after 1958. It was charged during Congressional hearings that Federal grades were responsible for the decline. To test this hypothesis the major factors that generate lamb prices were isolated. Price responses to quantity changes were obtained using both farm and retail prices.

Price of Lambs at the Farm

Prices received by farmers for lambs declined during 1959, 1960, and 1961. They were up sharply in the spring of 1962 (fig. 5). The 1959-61 decline offset the rise during the previous 2 years and reached a 15-year low. Increases in marketings appear to have been the major factors causing declining prices. Price changes each year since World War II, except one, have been inversely correlated with movements in quantity produced (fig. 5). Total commercial slaughter was halved between 1945 and 1951 while farm prices more than doubled. During 1951 and 1953 slaughter tonnage rose by two-fifths but never reached prewar levels. Prices dropped precipitously.

17/ This margin is varied sharply during special sales. By increasing quantities sold during specials, a retailer will purchase a far greater proportion of supply than regularly. Such volume purchases may result in large-scale procurement economies. The division of these economies between packers and retailers and ultimately between farmers and retailers depends on the respective supply and demand conditions as well as on their market position. The effect of buying for a special sale is very different when there is a burdensome supply than when the supply is short. Long supplies are associated with price reductions and lead to buyers' markets while short supplies give sellers the advantage in bargaining. Large purchases for specials may even result in higher wholesale prices if supplies must be drawn from a wider area than normal market sources. By choosing among alternative items, retailers can select specials from commodities in relatively large supply. This discretionary aspect of specialing gives retailers more flexibility than packers, particularly since regular retail prices will not sell a large part of the total lamb supply. However, the alternative to specialing is a uniform pricing policy accompanied by less promotion during the time lamb substitutes are promoted heavily.

Statistically, the postwar association implies that a 1-percent increase in lamb slaughter leads to a 0.6 percent decline in the farm price of lambs, other things being equal. 18/

Per capita consumption of lamb declined between 1945 and 1951 and only a small part of the reduction has been recouped (fig. 1, p. 28). The total annual consumption of lamb in recent years has been nearly constant despite a 1.7 percent annual increase in population and a 2.3 percent annual increase in per capita income. Lamb prices have not reflected these upward pressures. The downward trend in demand, estimated at 2.8 percent per year, largely offset the beneficial effects of increases in population and income (2, p. 23). 19/

Three different times in recent years total lamb production has been as high as 758 million pounds, but prices associated with this level of production have been succeedingly lower (fig. 5). The farm price associated with production level of 758 million pounds of lamb declined from \$21.90 in 1947 to \$18.40 in 1955 and finally to

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18/ The following multiple correlation coefficients were derived using annual price and quantity data for 1948-60:

$$\log P_F = 6.68 - 0.56^{*} \log X_{1F} - 0.84^{**} \log X_{2F}$$
$$- 0.42^{*} \log X_{3F} + 1.30^{*} \log X_{4F} + 0.07^{*} \log X_{5F}$$

Where,

P_F = Price received by farmers for lambs in U. S. in constant dollars as percent of previous year.

X_{1F} = Per capita production of lamb in U. S. as percent of previous year.

X_{2F} = Per capita production beef and veal in U. S. as percent of previous year.

X_{3F} = Per capita production of poultry and pork in U. S. as percent of previous year.

X_{4F} = Per capita disposable income in constant dollars in U. S. as percent of previous year.

X_{5F} = Price received by farmers for wool in U. S. in constant dollars as percent of previous year.

* = Significant at 0.05 percent level.

** = Significant at 0.01 percent level.

Coefficient of determination 0.87.

19/ In addition, studies of factors affecting farm income by Fox (4) covering the 1922-41 period, by Brandow (2) for 1955-57, and this study covering 1948-60 suggest that the decline in per capita consumption may have caused a rise in the price elasticity of the demand for lamb. Such a response indicates that when the demand curve shifted to the left, its curvature was altered.

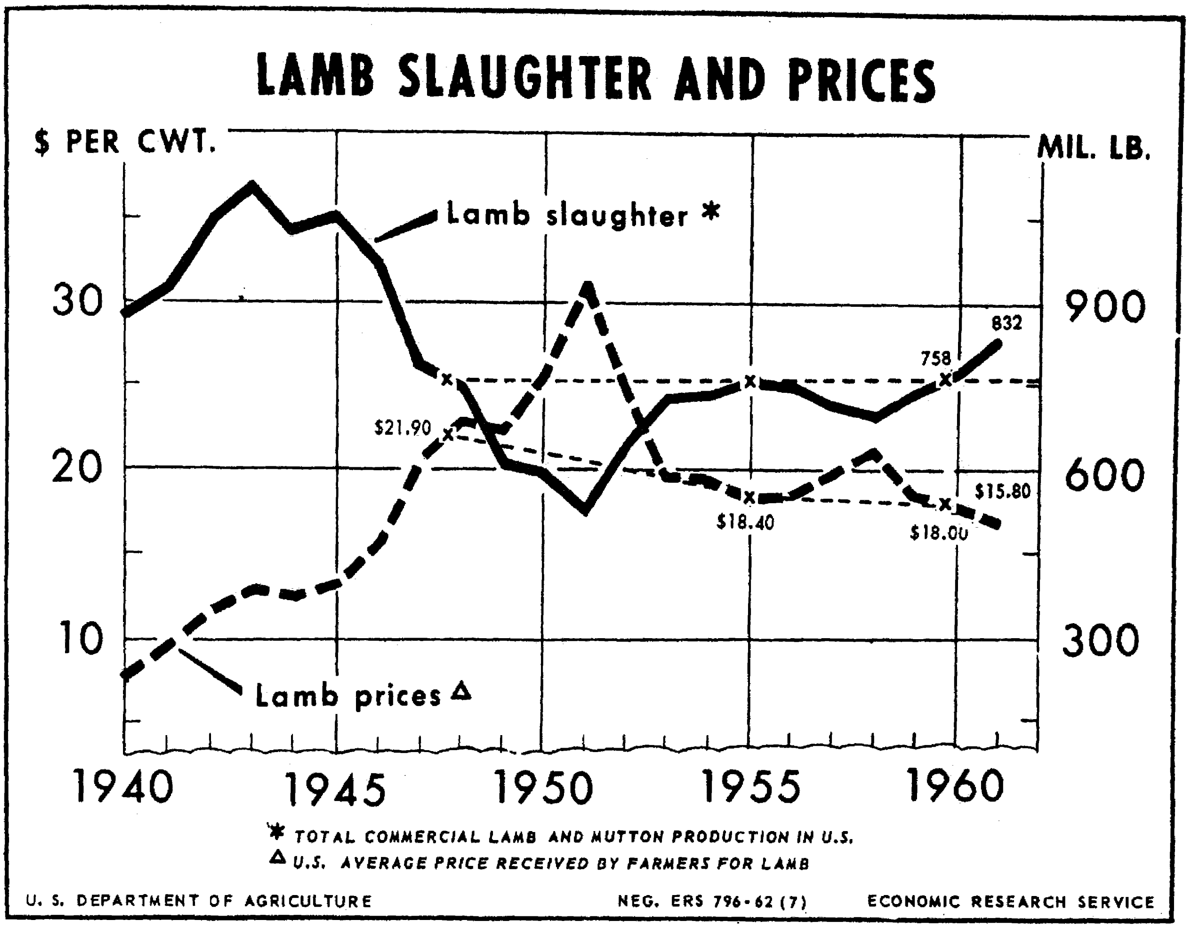

Figure 5

$18.00 in 1959. Since this decline took place in a period of increasing population and income, this evidence strongly suggests a decline in demand for lamb over this period. 20/

Production of other meats and consumer incomes strongly influence lamb prices. Since 1948 a 1-percent increase in beef production has been associated with a 0.8 percent decrease in lamb prices. Figure 6 shows the close relationship existing between prices received by farmers for beef cattle and lambs. Before 1958 lamb prices were consistently above cattle prices but since then have been below. Large increases in production of lamb and other red meat and poultry products during this period and the continuing decline in demand for lamb apparently accounted for most of this change. 21/

20/ Inferences regarding changes in consumer demand based on farm price changes imply constant farm-retail margins. The increase of $11 per cwt. in farm-retail margin between 1950 and 1960 modifies but does not negate the observed decline in demand.

21/ Between 1957 and 1960, total commercial production of lamb rose 9 percent, pork 3 percent, poultry 19 percent, and beef 4 percent. Total red meat production increased 450 million pounds at the same time poultry production increased 990 million pounds.

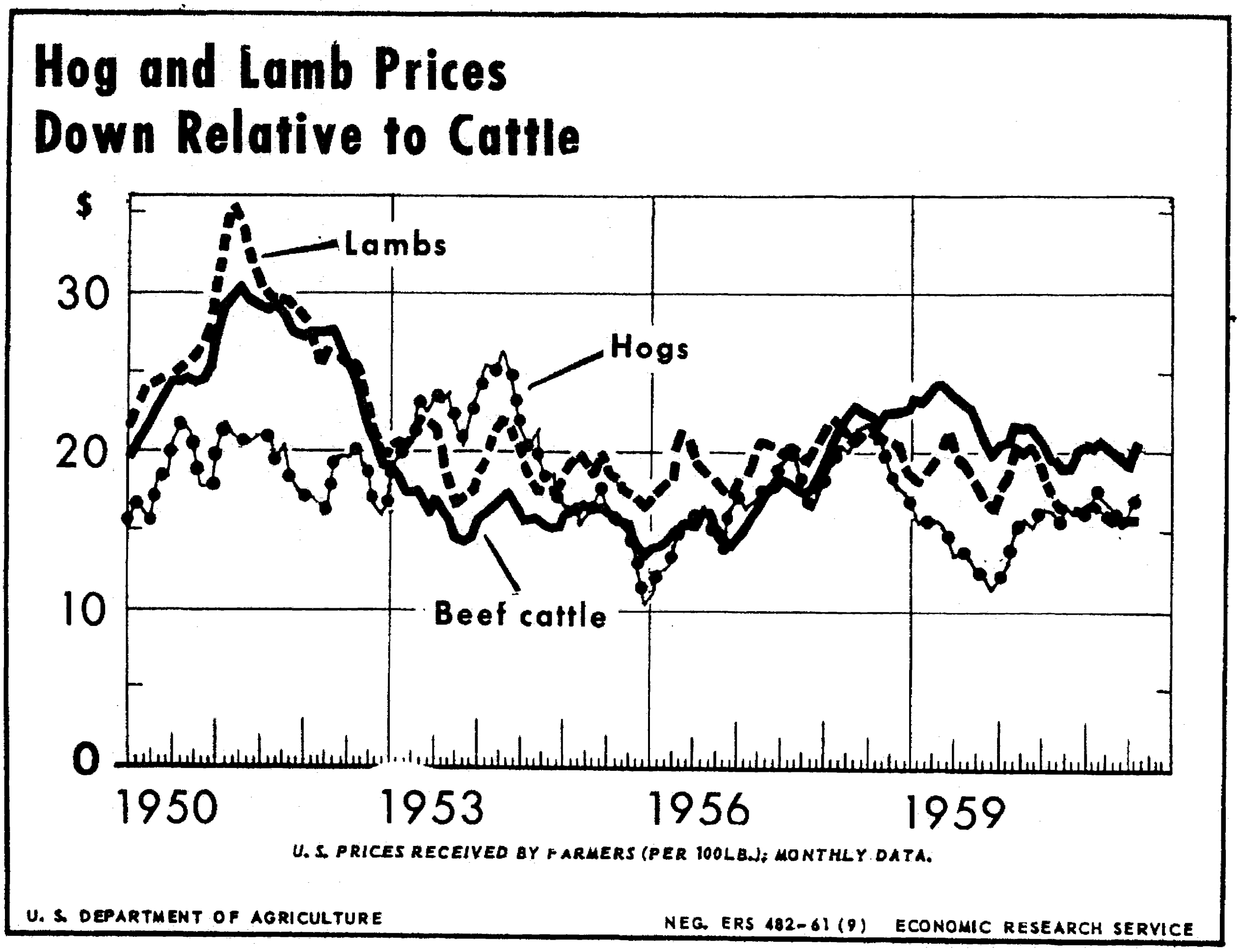

Figure 6

Annual lamb price changes from 1955 to 1961 were closely approximated on the basis of changes in lamb production, prices of substitute products, and consumer income. Estimated prices deviated from actual prices an average of $0.76 per year. The 1959, 1960, and 1961 prices were closely estimated despite the change in Federal grading standards in March 1960. This result suggests that short-term price effects of Federal grades are rather small, at least compared with the roughness of least square regression as a tool of analysis. The longer-run price effects as expressed through changes in competition and market structure are probably more important.

Price of Lamb at Retail

The price at which any given quantity of lamb can be sold reflects the price of beef and other meats, consumers' income, and various other market forces. These include the organization and coordination of buyers and seller within the local market and their contact with a larger national market.

Price analysis showed a 1-percent increase in lamb consumption (reflecting a rise in production) was accompanied by an estimated 0.4-percent decrease in retail prices of lamb. 22/ The rather small price response suggests that economic forces other than lamb supplies are important in establishing lamb prices.

Statements about the price-consumption relationship for lamb rest on the assumption of stability of prices of substitutes. These prices do change, however, and they cause reactions in lamb prices. Lamb competes with beef, poultry, and other meats, and apparently competes at a disadvantage. When beef prices fall, people appear to give up proportionately more lamb than poultry to buy more beef. Similarly, when the price of poultry falls lambs appears to be given up faster than many of its substitutes.

22/ Multiple correlation analysis also was used in deriving the estimates in this section. Annual data for 1948-60 in the form of first differences of logs were used:

$$\log P_R = -0.02 - 0.37^{*} \log X_{1R} - 0.54^{**} \log X_{2R} - 0.19^{*} \log X_{3R} + 0.55^{*} \log X_{4R} + 0.06^{*} \log X_{5R}$$

Where,

P_R = Price of lamb at retail in the U. S. in constant dollars as a percent of the previous year.

X_{1R} = Per capita consumption of lamb in the U. S. as a percent of the previous year.

X_{2R} = Per capita consumption of beef and veal in the U. S. as percent of the previous year.

X_{3R} = Per capita consumption of pork in the U. S. as percent of previous year.

X_{4R} = Per capita consumption of poultry in the U. S. as percent of previous year.

X_{5R} = Per capita disposable income in the U. S. in constant dollars as percent of previous year.

* = Significant at .05 percent level.

** = Significant at .01 percent level.

Coefficient of determination 0.87.

The price data had certain limitations. Carcass prices built from prices collected on a single desirable cut, leg of lamb, biased price response estimates. Prices collected only in major cities biased United States results because lamb consumption is concentrated in large west and east coast cities. It was hypothesized that skewed regional consumption results in differing regional demand responses. Attempts to quantify demand curves for California and New York were statistically unsuccessful but suggested that such differences exist. Effects of retail price specials may bias price responses. This kind of sale gives high computed elasticities that are difficult to evaluate because of the peculiar joint pricing and advertising policies involved.

This study indicates that beef supplies and prices appear to be more important than the supply of lamb in determining retail prices of lamb. 23/ A 1-percent increase in beef consumption (reflecting increased beef production and decreased beef prices) was associated with an estimated 0.6 percent decrease in lamb price. This is half again as great a change as is associated with a 1-percent change in lamb consumption. Institutional factors and trade practices account for some of this impact. Since both lamb and beef frequently are procured from the same supplier, small lamb volume may dictate purchasing both meats on the basis of beef price changes. Lamb often is handled both by processors and retailers as convenience to the few customers who want it and to complete a line of red meat products. Beef is a volume item so retail merchandising, grading, and resale pricing policies of lamb must be keyed to beef merchandising policies and be competitive with beef. 24/

High merchandising costs plus low volume combine to give lamb a low priority in obtaining retail shelf space. Lamb carcasses are small compared with beef so labor requirements are higher per pound for cutting and trimming. Small sales of lamb per store do not yield economies in procurement and handling comparable with beef.

In recent years, prices for the less desirable cuts of lamb -- breasts and shanks -- have trended downward, while prices for leg of lamb have remained almost constant, and prices for lamb chops have trended upward. During this period slaughter has remained fairly constant. Thus, the decline in demand for lamb appears to have been primarily the result of a decline in demand for certain cuts.

23/ This conclusion is consistent with the findings of Stanton, B. F. The Effects of Beef on Lamb Prices at Retail. (Unpublished data U. S. Department of Agriculture.)

24/ In pricing cuts of lamb, many factors are considered. Prices charged by competition were reported by more retailers than any other factor. Cost plus some sort of markup was next in order. Then came movement of different cuts and cutting tests. A few retailers, especially the single-store operations, said they price in relation to big chain prices. A differential either above or below was quoted. A few mentioned using their "judgment," seasonality, or location of stores. Some retailers could not give a coherent description of how their prices were determined. A few said there was very little variation in their lamb prices. One common method of pricing works like this: On the basis of total costs of operating the meat department, volume of movement of the various meats and time required to cut and process different meats a gross margin on cost is determined as a target for which to aim in pricing. Cutting tests then are made or a chart consulted to determine the proportion of the various lean cuts available from a lamb carcass. Demand for these various cuts next is considered based on past movement of each cut, the usual price at which each is sold, and the price currently being charged by competition. Prices then are assigned to each cut so that when the price for each cut is multiplied by the pounds of each cut in a carcass and added together, the desired total gross margin on cost will be obtained. These prices are first approximation. After they have been tried, they usually need adjustment in order to remain competitive with other stores and to move the whole carcass. If uneven carcass movement results, prices are altered either by a "special" or, if the uneven movement continues, on a regular basis. The alternative is to purchase cuts in addition to whole carcasses to supplement the uneven demand. Once prices become established on particular cuts, pricing decisions are made in terms of price changes in response to either cost changes, competition, or movement of product reflecting demand. The entire pricing procedure is not followed when pricing each new shipment of lamb.

Imports

Imports of lamb and mutton have been increasing since 1958, but nearly all of the increase has been boned mutton (table 17). Although imports of lamb and mutton have increased from less than 1 percent of domestic production to 12 percent in the last 4 years, imports of lamb have remained below 2 percent of domestic lamb production. In 1961, lamb imports alone would have decreased retail lamb prices less than 1/2 cent per pound.

There is also some impact of mutton imports on lamb prices, but this is indirect and probably small. The imported boned mutton undoubtedly weakens the market for processed lamb but only a small proportion of lamb typically goes into processed meats. Of the lamb and mutton sold fresh in the United States, nearly all is lamb. The market for mutton is more restricted; a large (but unknown) proportion can be sold only as a processed meat product. Mutton competes poorly with other meats and brings a low price. As a result, the increased mutton imports probably have little effect on the retail lamb price.

Specials

The movement of lamb does not seem to respond to a gradual lowering of retail prices as it does to a special sale because of the advertising and promotion, shock value, and bargain atmosphere that accompany a special sale. 25/

The problem is similar for other commodities but few of them have as high a proportion of total sales made under special sales. Lamb appears to be well suited to specialing.

Price specials can serve many purposes. Those important in the observed lamb pricing policies include the following:

1. Price specialing is a combination of competitive pricing and advertising strategies open to retailers selling many products. Prices are lowered on certain items chosen for the effects changes in their prices have on total sales of the store or a department within the store. Low or negative margins on special items are expected to be overcome by increased sales of items carrying normal markup. Positive margins on special items are not necessary when the objective is to attract customers and recoup losses on high margin items.

2. Price specialing can be the result of a 2-price policy based on price variations among markets. Differing shortrun demand responses for a given commodity in adjacent time-separated markets (the same customer 4 weeks later, for example) require differing prices for profit maximization. Since the volume

25/ The concept of consumption response to price change is instantaneous. Empirical measurement of this response has conventionally used annual data primarily for statistical reasons. Such a time span allows estimating responses over a single production period which is reasonably consistent and may not differ from long-run responses. However, there is reason to expect that responses during adjacent short-run time periods differ when markets are relatively independent over time. Brandow (2, pp. 32-35) found no difference between annual and long-period responses, but higher long-run responses were found in a study by Nerlove and Addison (10) and Working (16).

Table 17.--U. S. imports of lamb and mutton, 1952-61

Year	Total U. S. production 1/	Imports: Meat equivalent of live imports	Imports: Meat: Lamb	Imports: Meat: Mutton	Imports: Meat: Total lamb and mutton	Imports: Total lamb and mutton and live equivalent	Lamb imports as percent of lamb production 2/
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Percent
1952...	648	3/	5.4	0.8	6	6	0.9
1953...	729	3/	1.8	1.3	3	3	.3
1954...	734	3/	1.8	.3	2	2	.3
1955...	758	3/	1.4	.9	2	2	.2
1956...	741	3/	.8	.6	1	1	.1
1957...	707	1	1.8	1.7	4	5	.3
1958...	688	1	6.8	54.4	41	42	1.1
1959...	738	2	9.5	94.6	104	106	1.4
1960...	738	3/	12.4	74.6	87	88	1.7
1961...	832	3/	10.9	89.8	101	101	1.5

1/ Total commercial slaughter of lamb and mutton in United States in carcass weight.
2/ Estimated at 90 percent of total production.
3/ Less than 500,000 pounds.

of the commodity specialed is increased substantially during a special sale, and items are chosen for their low additional costs of handling, quite low markups can be profitable. A markup covering all costs is necessary in this case in order to make this policy profitable.

Lamb fits these requirements better than many other commodities because its perishability aids in separating markets in time. Leg of lamb is a cut with relatively low labor costs per pound and the large size of the cut gives good tonnage.

3. Specialing is also a method of passing along to customers a decline in purchase price and a means of disposing of surplus inventory. A temporary, favorable purchase price can be passed along without affecting "normal" prices. It is a method sometimes used to introduce a declining market. The promotional or shock value of a low price can be obtained without selling at a loss. In such cases, competitors frequently are specialing the same product so much of the competitive advantage is not realized.

Specials are more important to lamb than other meats. Most retailers indicated that their lamb volume during a special increases five or six times; in some areas the increase is even greater. As a result a large proportion of all lamb sales is made under specials. Some retailers are able to buy in volume in the wholesale market only for special sales.

Although the retail food industry is intensely competitive, several important rigidities have developed in lamb marketing. These rigidities are the result of the awareness of many retail firms of the importance of competitors' reactions to their decisions. They stem from the retailer's flexibility in decisions regarding whether or not to offer lamb. In many areas their customers ordinarily buy little of it. Unlike beef and pork, lamb seldom has a large following that will go to competing stores in response to lower lamb prices.

Although retailers consider many factors in scheduling special sales, they are quite sensitive to changes in the wholesale market and adjust their plans accordingly. When an individual retailer has a special, he increases his wholesale lamb purchases several times and often gets a price discount. In turn, this may reduce the quantity of lamb remaining in the market and may push the price up.

The level and tone of the wholesale market price of each meat are important factors in retailers' choices among products for specials. Thus, the indication that a major competitor is buying lamb at wholesale for a special may tend to cause other retailers to buy only the minimum quantity of lamb (in many areas this is quite small --often even less than fish). 26/ The large retailer who is buying lamb for a special is not likely to find a major competitor also buying lamb for a special at the same time.

This advantage is limited and extremely unstable. Retailers are reluctant to compete in situations unfavorable to them. Whether they go ahead and buy for a lamb special or switch to some other meat depends on the lamb market and the market for other products. All buyers know that competitors are always willing to move in quickly if they sense an opportunity.

26/ The tendency noted here may be submerged by more important considerations. For example, a falling market may make lamb a particularly good buy at wholesale. If retailers believe their competitors will feature unusually attractive prices on lamb, their incentive to pass the wholesale price decrease on to their customers is great.

Impacts of retail price specials on producers appear to be principally of two types: (1) effects upon prices and quantities demanded of various commodities, and (2) alteration of normal market flows and previous bargaining relationships.

Quantity effects of specials depend upon consumption responses to price changes of the commodity specialed and competing commodities. Changes in these responses, induced by promotion of special sales as well as normal response to greatly fluctuating prices, may result in fluctuations in supplies needed to satisfy demands. However, such effects may not occur unless a substantial part of the normal market is affected at a given time. In fact, without a concerted effort by a promoting group, specials by competing retailers tend to balance out over large numbers and over time and to be cushioned by inventories so that fluctuations at retail may not be noticeable at the farm level.

Effects of Federal Grades on Competition

The behavior of firms in the wholesale market for lamb can alter its market structure. 27/ The decisions of firms to use or not use Federal grades for lamb is a force affecting the volume of product sold, the number and size of firms in a market, and the area over which the product is sold. Such changes affect the nature of competition in the market.

Meatpacking firms compete on the basis of the efficiency with which they allocate their resources in buying, slaughtering, processing, and marketing livestock and meat. Some firms also compete by changing the public image of their product. To the extent this is done by improving the quality or reducing the variation in the quality of the lamb they sell, they are providing a service to consumers. Few large lamb slaughterers, however, are able to select and slaughter only top quality lamb. The range of quality of the lambs they kill necessarily resembles the range of quality of all animals slaughtered in the same area at that season. As a result it sometimes is difficult to fill orders for some levels of quality because the level of quality of lambs marketed varies by season and by year. Consequently, packers face a strong temptation to include some lower quality lamb in their top brands.

When this is done, the industry may be damaged. Customers are led to believe they are getting lamb of a consistent quality level when the quality actually is variable. Large firms are able to develop some consumer attachment to their brands by exposing consumers to constant advertising. In this way a firm with large resources gives the impression that its best meat is better than that of a small firm that cannot advertise widely--even when the opposite may be true (some small firms are able to select

27/ Rational economic behavior calls for firms to attempt to protect and enlarge their market share. This is done by price and quality competition and by altering consumer attachment through advertising and product differentiation.

Society generally applauds efforts to compete by improving levels of efficiency but is critical of attempts to maintain a market share by restricting competition from either existing or potential firms. Competition is the force expected to maintain efficiency. The real possibility of a competitor selling at a lower price is expected to lead to the smallest margins consistent with the continued operation of efficient firms. The possibility of a new firm entering the industry and selling at a lower price is expected to prevent the existing firms from maintaining high prices and enjoying large profits.

lambs very carefully). Because of their exposure to advertising, consumers may select the known brand. The large firm may grow while the small one may fail on the basis of projected differences that do not exist.

Without Federal grades, packers with proprietary labels would often be able to outbid small packers. If small packers were driven out of business, remaining packers would be less competitive, and lamb prices would be lower.

Such a situation led to the original development of Federal grades. The offer of federally graded lamb by some packers (initially those without private brands,) and the growing willingness of many retailers to buy such lamb has forced the more reluctant packers to offer federally graded lamb to their customers in order to hold their markets. Federal grades tend to improve the level of competition in the industry by allowing small firms without proprietary labels to compete with large firms.

Increased market competition is particularly important in the lamb industry because a small number of firms represents a large part of the national industry. On markets where a small number of major firms compete with each other on an equal basis for a limited supply, competition can be intense. But such competition may not last over the long run. High concentration increases the possibility of policies which give the same result as collusion without the overt act. Firms learn that vigorous activity in the marketplace risks retaliation from important competitors. They learn what they can safely do. Under this type of competition, when firms anticipate the reactions of competitors to their own pricing activities, the result may be market sharing with no collusion (7). With few firms in the market, individual firms may be forced into this rational behavior pattern without being aware that the result may be lower prices to farmers and higher prices to consumers.

The presence of a growing number of important and highly competitive independent lamb slaughterers and a nationwide market for the lamb slaughtered by all packers tends to limit price distortion to individual market areas. Many independent firms in this changing market structure have relied heavily on Federal grades.

Federal grading helps the nationwide lamb market to become more articulate and competitive. It allows buyers from coast to coast to be in contact with many sellers regardless of the distance involved. It improves the precision of market information. It helps limit the range within which individual markets can differ from the national market price, in spite of the small number of firms in a given market area.

Effects of the Change in Grade Standards

The most immediate effect of the 1960 change in Federal grades for lamb was to increase the supply of U. S. Prime and Choice, and to reduce the supply of U. S. Good lamb. Even though the proportion of federally graded lamb that was rolled Choice decreased by about 5 percentage points between 1959 and 1961, the total supply of Choice carcasses increased. The proportion of total commercial lamb slaughter that was federally graded in 1961 increased from 35 to 44 percent at the same time total commercial slaughter increased by 14 percentage points.

The segments of the industry which used Federal grades strongly approved the 1960 change, but there were a few dissenting. Those who were critical were generally opposed to any Federal grading. Three national packers who object strongly to Federal grading also objected to the change. Of those who felt that Federal grading was beneficial, none opposed the change. Some hotel and restaurant suppliers have heard complaints about the new Prime grade, while a few retailers complain about the new Choice.

The trade was in favor of the change because it solved several immediate problems. Retailers were pleased with the increased supply of Choice and Prime. Carcasses graded Choice and Prime, as a group, are now lighter and leaner.

Most of the trade indicated little concern over the quality levels of the current grades. They seemed more than willing to give up the necessary "quality" required to widen the supply of Choice and Prime to get it leaner. Retailers generally indicated that the new Choice was at least as acceptable as the old. Many retailers have a strong impression that their customers like the new Choice better than the old. Retailers indicated that their customers generally have shown a preference for lighter, less wasty lamb, and that the 1960 change is in line with these preferences. The time lapse since the change has been too short to say whether or not this appraisal is correct.

Nevertheless, the fact that retailers think that consumers want leaner lamb, and lighter cuts, has an important significance of its own. It determines what retailers buy, and what they offer their customers, and how they design their advertising. Almost certainly, these factors are influential on what consumers do want.

Producers appear to be responding to the grade change by feeding lambs a shorter period of time and marketing lighter lambs. This means less feeding cost per lamb marketed. It may also mean less demand for the services of livestock feeders. The number of lamb inshipments into the Corn Belt declined during the traditional feeding months of 1960-62 even though commercial slaughter increased. Since the 1960 change in grades, a larger proportion of yearly slaughter occurred during the fall rather than the winter months. If these trends continue, lamb feeders will be at a disadvantage because less feeding will be required.

The 1960 change in Federal lamb grades had little discernible impact on lamb prices. Both farm and retail lamb price changes were associated with changes in prices of lamb substitutes and lamb production. The degree of this association did not change noticeably with the change in grade standards in 1960.

An objective of the change in standards was to define the grades so there would be at least three "working" grades, each with an important proportion of the demand and supply. But this has not occurred.

To most of the trade the demand for federally graded lamb is more than ever concentrated on U. S. Choice. The U. S. Government and some institutions request U. S. Good, some hotels and restaurants U. S. Prime, but most retailers prefer to offer U. S. Choice. They have found the grade name to be a highly successful "brand". As a result, the retail demand for lamb continues to be mostly for Choice lamb.

Probably the most important effects of the 1960 change are subtle and long run in nature. They include an increase in the industry's confidence that Federal standards are designed for the benefit of the users and that they can be changed when needs change. Federal grades appear to be more useful to the industry since the change, because they are more widely used. Further, the more widely Federal grades are used, the more useful they become as a means of communication between markets and market levels. Better means of communication mean more information, more informed and better decisions at every level. The new grades appear to have given producers a clearer indication of consumers' preferences. Producers have responded by marketing lighter lambs with less finish.

General Conclusions

Federal grades were not intended to serve as retail brands but retailers generally indicated that their incentive for buying federally graded lamb came from its usefulness in merchandising as well as in procurement. Federal grades are useful in purchasing, in quality description, in price interpretation, and in limiting the variability of the lamb from which they select. They seldom serve as sufficient quality specification for wholesale transactions, however, even in western markets where they are most widely used. Other important specifications are nearly always added. These include a weight range and, often, further quality specifications.

Wholesalers find Federal lamb grades more useful in selling then buying. Many of their customers insist on federally graded lamb. Because of their specialized nature and close contact with packers, wholesalers generally communicate quality very well using Federal grades and weight plus a variety of more descriptive individual techniques. Wholesalers are so expert at specifying and communicating quality over long distances that they successfully buy unrolled lamb and have it graded so that they can meet their customers' requests for federally graded lamb.

The use of U. S. Choice as a retail "brand" has led to pressure for more and more lamb to be included in this grade. Packers estimated that of the lambs slaughtered in 1960, 68 percent would have made Choice and 11 percent Prime had it all been federally graded. Since then, the proportion qualifying for U. S. Choice has increased at the expense of Prime. There is a general feeling in the trade that U. S. Choice is important mostly for the lamb excluded at both ends of the quality range. Most of the trade believe that quality variation in the Choice grade, even though it covers the bulk of the total supply, is not sufficiently great to offset the advantages of having essentially one "working" grade. Many retailers have specific quality preferences and attach their own specifications to their orders. Since the change in grade standards, these specifications usually fall within the Choice grade. Because leaner lambs now can be rolled Choice, retailers are happier; because a larger proportion of their lambs grade Choice, packers are happier.

Large variations in lamb quality (as measured by grade standards) arise from the differences in breeds and types slaughtered. Nevertheless, variations in eating quality appear to be less for lamb than for other meat animals, perhaps because lambs are young animals when slaughtered. The large amount of breed and type variation tends to lead to wide grades. The trade appears to find their variation less important for lamb than for other species, as they have readily accepted the relatively wide grades.

Federal lamb grades were designed to help wholesale traders describe quality in lamb carcasses. In practice their use and impacts go far beyond this intention. By facilitating wholesale trading, Federal grades have helped a fast growing group of strong independent competitors steadily to erode the large share of the wholesale lamb market traditionally held by the national packers. By increasing the quality information available to producers and retailers, Federal grades have helped change production and marketing patterns in line with the preferences of consumers. Retailers have found Federal grades useful in merchandising in addition to their use in the wholesale market.

The impact of Federal grades in the lamb market is both subtle and far reaching. There is little evidence that they have important short-run effects on prices, but undoubtedly, they have important long-run effects on prices by allowing price comparison among markets and by enlarging the markets for many small buyers and sellers. By helping producers get more quality information quickly, they speed up industry response to consumers' preferences. Such a response is essential in today's competition among meats for the supermarket shelf space.

The two most important effects of Federal grades for lamb appear to be on producers' decisions and on market competition. Of these, the latter is probably the more important. The high level of concentration in the wholesale lamb market, particularly in some individual markets, is a potential threat to market competition. The growth of highly competitive independent firms is a growing force counter to this threat.

Despite imperfections, Federal grades for lamb are useful at all levels of the market and have important beneficial effects. There is no evidence that they are responsible for the serious problems currently troubling the lamb industry. On the contrary, as these problems are met by improving the product and increasing consumer demand, Federal grading likely will grow in importance.

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